

Fig. 15. Plan, Qasr-i-Shirīn (from Pope and Ackerman, *A Survey of Persian Art*).

by a similar but smaller hall leading to a court. Both halls are of the so-called liwan type, completely open on one end. The liwan motif lives on in mediaeval church narthexes, porches, and vestibules. It has its origins in Parthian art, where it developed from the simple house to the palace. The most magnificent example of such a liwan of the late Sassanian period is the Tāq-i-Kisrā in Ctesiphon. Here the façade flanking the liwan is articulated by blind galleries in several stories; behind the liwan room in the center of the façade we must imagine a domed throne hall.

Another example from the Sassanian period is the castle of Qasr-i-Shirīn (fig. 15), which also has a domed room that opens into narrow barrel-vaulted side rooms. Towards the front of the building a long barrel-vaulted room opens as a liwan towards the outside. Its barrel vault does not rest directly on the walls, but rather on pilaster strips (*Sporen*) attached to the wall. The floor plan thus produced has a nave with two side aisles and, accordingly, three entries. Similar motifs of three-portal entries occur earlier in Parthian art at Assur and Hatra. Furthermore, the Sassanian three-portal entry seems to be related to the triple arched portal motif in Roman triumphal arches. Remarkably enough the first such Roman triumphal arch,

erected in 19 A.D. beside the temple of Caesar, commemorates the victory of Augustus over the Parthians.²⁶ It is, however, not yet clear who was influenced by whom.

In the park before the castle of Qasr-i-Shirīn a water basin or canal stretches on an axis with the façade much as it occurs on a smaller scale in the gardens of houses at Pompeii and on a greater scale in the canopus of the Villa of Hadrian at Tivoli.²⁷ The use of water in this relationship may perhaps indicate that the rule of the princes extended over the waters of the sea, which is no less important in the Oriental rulers' titles than their rule over the land. This motif of the water canal in the park of a palace is taken up later in Islamic architecture, and from there it is introduced into western palace building, where it becomes important again in the Baroque palace gardens.

The dome motif also lives on in the Islamic period, for instance in the Abbasid palace of the ninth century of Al Jausaq in Samarra.²⁸ Here the central dome is flanked by four three-aisled rooms axially directed towards the points of the compass, perhaps indicating the four parts of the world under the sovereign's rule. A variant of the building motif we are here pursuing, namely the domed room with four added side rooms, lives on in the Islamic kiosk as in the Cinili kiosk in Istanbul.²⁹ An example of its early stages can be seen in the Sassanian domed throne room in Bishapur.

Returning once more to the peristyle of the Palace of Diocletian at Spalato, we see that in spite of the fact that it is unroofed—a *basilica discoperta*—it does belong, together with the domed room and the long barrel-vaulted hall, to the group of rooms with their many variations which we have been discussing. This group has the domed throne hall as a core.

In another part of the palace at Spalato there is a large basilical hall and a smaller single-aisled one. Both of them were probably barrel vaulted and both have apses on one end. Here we approach a new motif: the room with an exedra (apse), which has a very long history in its use as a cult room. Even in early Archaic times we can find apsidal houses. In Greek Archaic architecture, for example in the temple models of Perachora,³⁰ the motif is elevated

26. Pauly-Wissowa, *Real-Encyclopädie*, suppl. 4 (1924), and second series 13 (1939), 380.

27. Heinz Kähler, *Hadrian und seine Villa bei Tivoli* (Berlin, 1950), pp. 137 ff.; for a reconstruction of the Canopus see 'Uncovering and restoring the splendours of Hadrian's villa at Tivoli', *The Illustrated London News* (5 October 1957), pp. 552 ff. For water basins in Pompeian gardens see Vittorio Spinazzola, *Pompei alla luce degli scavi nuovi di via dell' Abbondanza* (Rome, 1953), pp. 369 ff.

28. K. A. C. Creswell, *Early Muslim Architecture* (Oxford, 1940), II, 227 ff.

29. Ernst Diez and Oktay Aslanapa, *Türk Sanatı* (Istanbul, 1955), pp. 183 ff.

30. H. Payne, *Perachora* (Oxford, 1940), pp. 27 ff., pl. 9; K. M. Swoboda, *Kunstgeschichtliche Anzeigen III* (Graz, Vienna, Cologne, 1958), 17, n. 19.

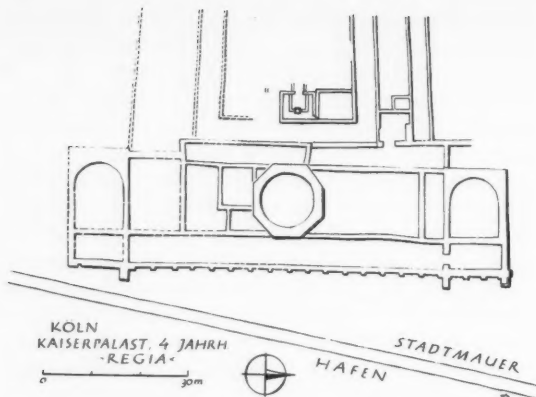


Fig. 16. Plan, Imperial Palace, Cologne (from Doppelfeld, *Wallraf-Richartz Jahrbuch* 18, 1956).

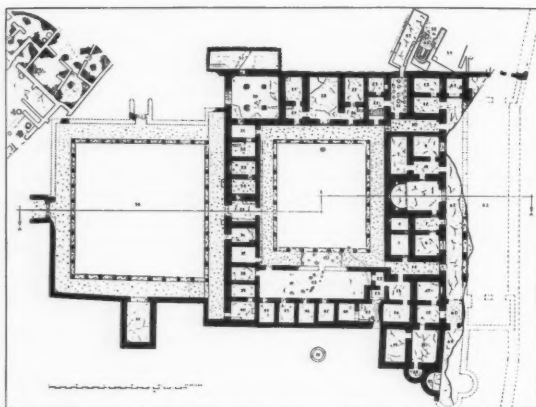


Fig. 17. Plan, Palace, Dura-Europos (from Rostovtzeff and Bellinger, *The Excavations at Dura-Europos*).

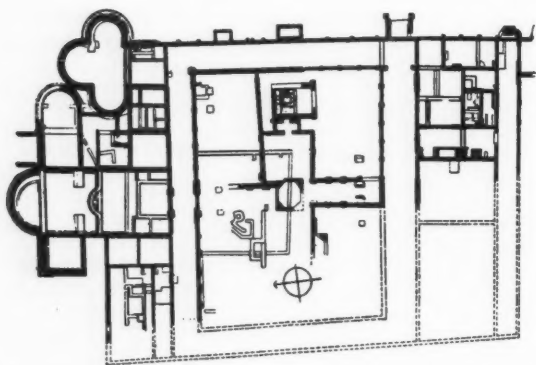


Fig. 18. Plan, Palace of Theodoric, Ravenna (from Ghirardini, *Monumenti antichi* . . . 24, 1916).

to use in religious architecture as a sacral type. A further late antique example of the apsidal hall, close in time of erection to that of Spalato, is the Imperial Palace in Cologne dating from the beginning of the fourth century A.D. (fig. 16).³¹ The façade which faces the Rhine River consists of a long gallery of arcades of columns or piers; the corner section motif is also present. On each of the flanks of the building is a hall with apsidal ends, and in the middle of the façade is a circular room with a cupola, evidently the throne room.

But let us return to the apsidal hall motif. An earlier variation of the palaces of Spalato and Cologne is the so-called palace of the Dux Ripae in Dura-Europos, built before 273 A.D. (fig. 17).³² Its front, again facing the water, looks out on the Euphrates. It consisted of a pilaster hall. Here, the apsidal hall is placed on the principal axis of the building, taking the place of the domed throne rooms discussed above. Behind the palace of Dura-Europos lies a large peristyle court.

In following periods the palace with an apsidal hall as a dominating room, perhaps as throne hall, on the principal axis of a peristyle court system occurred more often. The palace of Theodoric in Ravenna is an example at the beginning of the sixth century (fig. 18).³³ Here the axially placed apsidal hall, which opens into the peristyle, is the main room of the whole complex. The second largest room is a triapsidal hall, a triclinium—a type of room which was used for banquets in antique times.

Another example of the palace type with an apsidal hall as the main room is the villa in Piazza Armerina, Sicily (fig. 19), dating from the beginning of the fourth century, which is perhaps a country house of the Tetrarch Maximian Hercules.³⁴ Here again the main room is a deep apsidal hall, but this time probably only the apse was vaulted. Between this hall and the peristyle is placed a long ambulatory reminding one of the so-called Stoa Poikile of the Villa of Hadrian and here foreshadowing the transept of the Christian basilica. Again there is a triconchos to the south of the apsidal hall; it forms the triclinium of this palace.

Since the fourth century, such apsidal halls existed in the various provinces of the Roman Empire as axially placed main rooms in villa complexes of large land owners. One of the many examples is the mid-fourth-century villa

31. Otto Doppelfeld, 'Von Posthumus zu Konstantin', *Wallraf-Richartz Jahrbuch* 18 (1956), 25 ff. The palace was built by Constantine before 309; see also Otto Doppelfeld, 'Römische Grossbauten unter dem Kölner Rathaus' *Germania* 34 (1956), 83 ff.

32. M. I. Rostovtzeff and Alfred Bellinger, *The Excavations at Dura-Europos* (New Haven, 1952), III.

33. Gherardo Ghirardini, 'Gli scavi del palazzo di Theodorico a Ravenna', *Monumenti antichi per cura della Accademia dei Lincei* 24 (1916), 783 ff.

34. G. V. Gentili, *La villa imperiale di Piazza Armerina* (Rome, 1954).

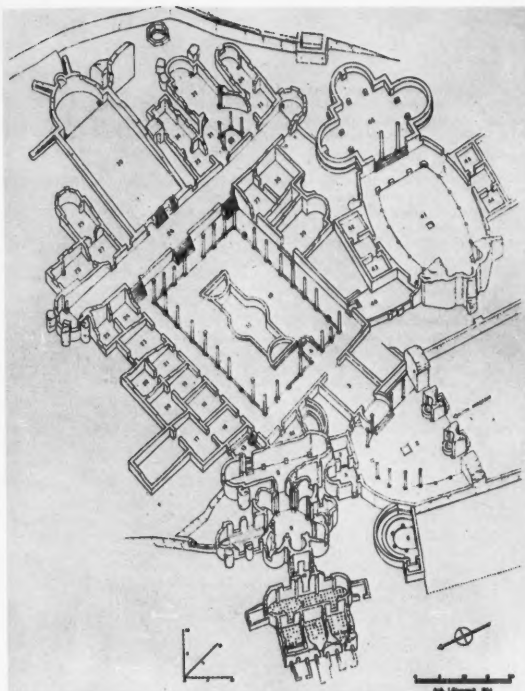


Fig. 19. Plan, Imperial Villa, Piazza Armerina (from Gentili, *La villa imperiale di Piazza Armerina*).

in Lullingstone, England.³⁵ Here the apse is more than a semicircle, and a dome has been reconstructed on the basis of indications of supporting buttresses. The room in front of the dome is much shorter here than in the other examples. The façade may have been a reduced form of the portico-villa with corner blocks. Of particular interest in this complex is a Christian chapel where fragments of wall paintings were found.

The excavations of the Imperial Palace area on the terraces between the Sea of Marmara and the hippodrome in Istanbul are also of particular interest in the same context (fig. 20). Until recently only one peristyle had been found, that with the famous mosaic floor, but now to the southeast of it, towards the sea, an extremely large apsidal hall has been uncovered.³⁶ This hall is built on a massive substructure which surely indicates that it was vaulted. A vestibule with pillars is placed in front of it. Thus the combination of peristyle and apsidal hall, dominant and on the principal axis, is established as a motif for this part of the large, though still unexplored, building.

35. G. W. Meates in R. L. S. Bruce-Mitford, *Recent Archaeological Excavations in Britain* (London, 1956), pp. 87 ff.

36. D. Talbot Rice, *The Great Palace of the Byzantine Emperors*, Second Report (Edinburgh, 1958).

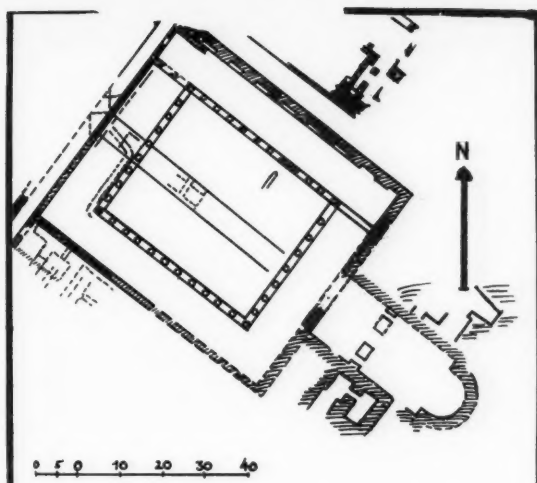


Fig. 20. Plan, Imperial Palace, Istanbul, combination of two drawings (from D. T. Rice, 'The Great Palace of the Byzantine Emperors', *Archeology* x, 1957).

With these examples this brief survey of several important palace motifs from the late antique and early mediæval periods closes. I would, however, like to add a few supplementary remarks concerning the imperial palaces on the Marmara Coast in Istanbul. Numerous palaces and parts of palaces were located here, known primarily from the ceremonial book of Constantine Porphyrogenetus.

Worthy of discussion is the so-called *chrysotriklinos*—the name used here for the throne hall—as reconstructed by Ebersolt from written sources.³⁷ The room was circular, domed, and had numerous niches. Because this room was also used for ecclesiastical purposes, the asserted relationship in function to the palace chapel of Charlemagne in Aix-la-Chapelle can be considered correct.³⁸ The excavations of the tenth-century palace church of the Bulgarian czars at Preslav affirm the correctness of the reconstruction of the floor plan of the *chrysotriklinos*.³⁹ Here columns placed against the wall sections between the niches project like a relief, similar to the effect created earlier in the mausoleum of the Palace of Diocletian at Spalato. In each of these cases we are dealing with the survival of pagan buildings of the centralized type, which were replaced in Christian times, for ecclesiastical pur-

37. J. Ebersolt, *Le grand palais de Constantinople* (Paris, 1910), pp. 77 ff.

38. Heinrich Fichtenau, 'Byzanz und die Pfalz zu Aachen', *Mitteilungen des Instituts für österreichische Geschichtsforschung* 59 (1951), 1 ff.

39. Krsto Miatev, 'Die Rundkirche von Preslav', *Byzantinische Zeitschrift* 30 (1929/30), 561 ff.; also B. Filov, *Geschichte der altbulgarischen Kunst* (Berlin, 1932), pp. 29 ff.

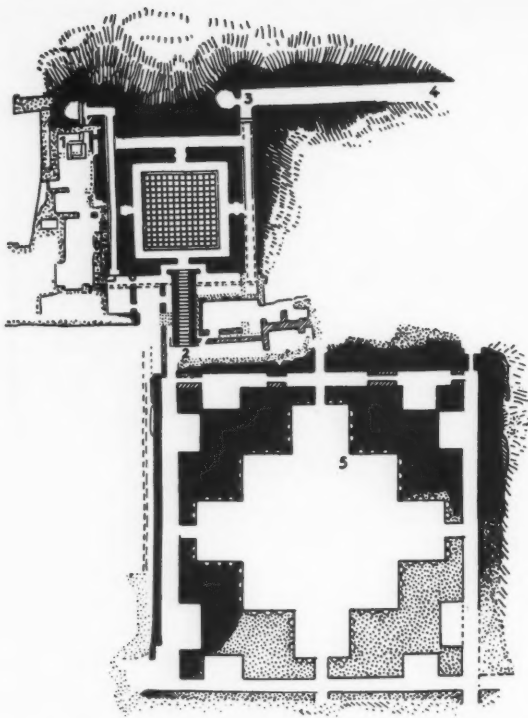


Fig. 21. Plan, Palace with fire temple, Bishapur (from Erdmann, *Das iranische Feuerheiligtum*).



Fig. 22. Zisa, Palermo (from Springer, *Handbuch der Kunstgeschichte* VI).

poses, by monumental central buildings with domes and ambulatories, as in San Vitale and at Aix-la-Chapelle.

Occasionally, however, the pagan type without ambulatory survives in church buildings in certain Christian areas; for instance, in Armenia in the church of Mastara constructed in the ninth and tenth centuries.⁴⁰ The interior appearance of this church is that of a thermal hall, and it reminds one of drawings of such halls by Giuliano da Sangallo. This pagan type also exists in the non-Christian Sassanian architecture, for example in the domed room of the palace of Bishapur (fig. 21).⁴¹ Here again Islamic architecture inherited the Sassanian tradition. The twelfth-century Norman kings of Sicily indirectly inherited it also, as can be seen in the domed room of the Zisa in Palermo (fig. 22).⁴² The eleventh-century palace of Kalaa of the Beni Hammad in North Africa is an Islamic predecessor to the Zisa (fig. 23).⁴³ There are, however, cases where the Christian basilica with three aisles influenced the ceremonial halls of Islamic palaces.

The most interesting example of this influence is found in the early Omayyad palace of Mshatta.⁴⁴ There the three-aisled basilica ending in a triconch opens into the court as a liwan. There are other cases in Islamic palace architecture in which only the three-aisled motif of the basilica is used, the aisles having dead ends in walls, as is the case in the Kibla wall of a mosque. One example is the tenth-century palace tract in Medina Azzahra, the country villa of the Omayyad caliphs near Cordoba (fig. 24).⁴⁵ Here we are in the Moorish area, where the dominance of the cupola in the mosque is traditionally rejected. The three aisles are short and wide, the façade is that of a portico front with corner blocks. In a second hall in Medina Azzahra, also with three aisles, a type of crossing (perhaps domed) is effected in the center by alternation of columns and piers.

In Christian areas the three-aisled basilica motif, though with an apse, is also used as a princely chamber. An ex-

40. W. M. Arutjunian and S. A. Safarian, *Pamjetniki Armjanskogo Sodshestva* (Monuments of Armenian Architecture) (Moscow, 1951), p. 43; A. L. Jacobson, *Očerki istorii sodshestva Armenii* (A Survey of Armenian Architecture) (Moscow, 1950), pp. 25 ff.; J. Strzygowski, *Die Baukunst der Armenier* (Vienna, 1918), I, 74 ff.

41. R. Girshman, 'Les fouilles de Châpour', *Revue des Arts Asiatiques* 12 (1938), 12 ff.; also Kurt Erdmann, *Das iranische Feuerheiligtum* (Leipzig, 1941), pp. 50 ff.

42. Georges Marçais, *L'Architecture Musulman d'Occident* (Paris, 1954), pp. 81 ff.; also Oscar Mothes, *Baukunst des Mittelalters in Italien* (Jena, 1883), pp. 551 f.

43. Marçais, *L'Architecture Musulman*, pp. 81 f.; also L. de Beylié, *La Kalaa de Beni-Hammad* (Paris, 1909), pp. 38 ff.

44. K. A. C. Creswell, *Early Muslim Architecture* (Oxford, 1932), I, 350 ff.; also K. M. Swoboda, *Kunstgeschichtliche Anzeigen II* (Graz, Vienna, Cologne, 1957), 68.

45. Manuel Gómez-Moreno, *Ars Hispaniae III* (Madrid, 1951), 63 ff.; also A. Garzia y Bellido, 'Archaeological News, Spain and Portugal', *American Journal of Archaeology* 52 (1948), 267 ff.

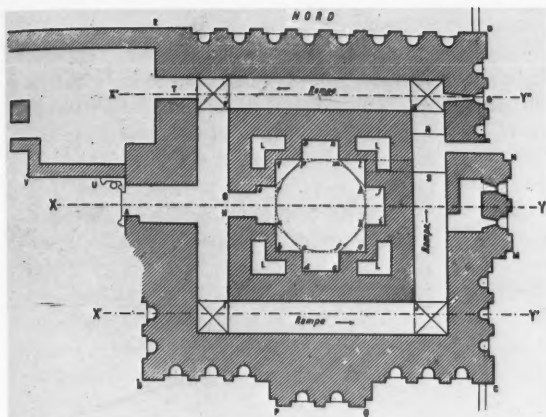


Fig. 23. Plan, Kalaa, Beni Hammad (from Beylié, *La Kalaa de Beni-Hammad*).

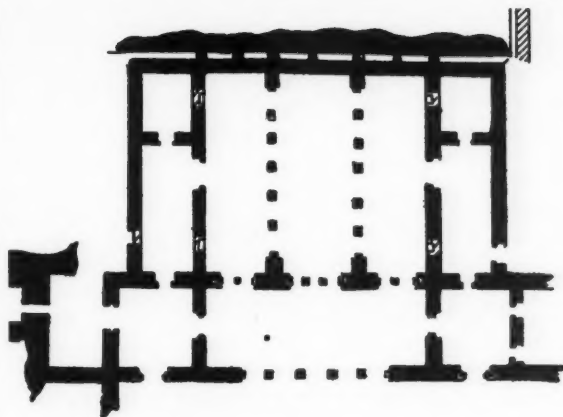


Fig. 24. Plan, Palace, Medina Azzahra (from Gómez-Moreno, *Arts Hispaniae*).

ample of this is the Carolingian palace Pfalz of Ingelheim.⁴⁶ We find the same motif in the Bulgarian palace at Pliska,⁴⁷ where the hall is placed in the upper story as had occurred earlier at Aix-la-Chapelle.⁴⁸ Both structures are royal chambers and not Christian churches; we thus see that ecclesiastical motifs were used for palaces in the Christian area as well.

46. A. Zeller, *Die Auswertung des Befundes früherer Bauanlagen im Saale in Ingelheim, Reichsrat und Kaiserwohnung I* (Berlin, 1935), II (Berlin, 1936).

47. Bogdan Filov, *Geschichte der albulgarischen Kunst* (Berlin, 1932), pp. 7 ff.; also A. Wasilev, *Stroitelnata tradizia v prabulgarskit dvorci ot Pliska* (Sofia, 1937), pp. 54 ff.; M. P. Zapenko, *Arhitektura Bolgarii* (Moscow, 1953), pp. 74 ff.; also K. M. Swoboda, *Kunstgeschichtliche Anzeigen IV* (Graz, Vienna, Cologne, 1959), 49.

48. See Karl Foymonville, *Die Kunstdenkmäler der Rheinprovinz 10, Aachen, 3* (Die profanen Denkmäler) (Düsseldorf, 1924), 126 ff.

In this brief survey we have noted a series of separate motifs traditionally applied to palace architecture, which undoubtedly carry certain specific meanings alongside their practical, functional values. In this connection we have been able to establish several ideas. But the meaning of individual motifs and, for that matter, their concrete functional purposes as well, must remain problematical so long as the historical affiliation of the motifs is not thoroughly explored. In my opinion this should be one of the chief concerns of further investigations. Only then will it be possible to write the type of iconography of the history of palace and other secular architecture which is needed as a supplement to the development of stylistic criticism. This iconography could bridge the gap between the development of style and the concrete functional purpose and meaning of a building, as far as can be established from written sources. Before we are able to interpret, we must therefore investigate more precisely the monuments and the historical facts.

AMERICAN NOTES

Boston Building Ordinances, 1631-1714

Among the collections of the Historic American Buildings Survey are to be found some unexpected items for Massachusetts, where the late Frank Chouteau Brown worked so long and so well as District Officer. Included is a mimeographed volume entitled 'Notes on the Development of Early Architecture in Massachusetts' dated 1941. Its authorship, cloaked in the anonymity of the WPA, is not stated. But the title page is signed by Lewis M. Lawrence, Supervisor, the acknowledgment is made of 'the generous cooperation of Robert P. Bellows, F.A.I.A., chairman of the Advisory Committee, who contributed valuable assistance during the early preparation of this work.'

The following items relating to the problems of the Boston builder are excerpted from the above-mentioned collection. The hard-bitten economics of city real estate have hardly been touched upon by architectural historians, as far as we know. —Editor

In 1631, shortly after the burning of Mr. Sharpe's house in Boston, Governor Dudley wrote, 'for the prevention whereof in our new towne intended this somer to bee builded, we have ordered that noe man shall build his chimney with wood, nor cover his house with thatch, which was readily assented onto.' The order had little more force than a recommendation and although 'assented onto' was not generally obeyed.¹

4 October 1636: 'it was agreed and ordered that from this day there shall noe house at all be built in this towne neere unto any of the streets or laynes therein; but with the advise and consent of the overseers of the townes occasions for the avoyding of disorderly building to the inconvenience of streets and laynes, and for the more comely and Commodious ordering of them.'² 3 September

1635: 'Further, it is agreed, that, hereafter, noe dwelling howse shalbe builte above halfe a myle from the meeteing howse, in any newe plantacon, graunted att this Court, or hereafter to be graunted, without leaue from the Court, (except myll howses & fferme howses of such as have their dwelling howses in some towne.)'.³

The chief cause of fires was held to be chimneys, and a fine was exacted in every case where fire was seen to issue above the top. Special orders were given also from time to time to secure chimneys when they appeared to be dangerous. Two months after the great fire which occurred in Boston on 14 January 1653, the town ordered that 'there shall be a ladder or ladders to every house within this town that shall reach to the ridg of the house' and 'a pole of about 12 foot long, with a good large swob at the end of it, to rech the rofe of his house to quench fire in case of such danger' and 'the selectmen shall forthwith provide six good and long ladders for the Towne's use, which shall hang at the outsyde of the meeting house.' It was also ordered 'that fewer good strong Iron crooks, with chains and rope fitted to them, and thes crooks fastned on a good strong pole be forthwith provided by the selectmen, which shall hang at the syd of the meeting house', and 'no house shall be pulled downe in case of fier by any men, without the consent of the major part of the majestrats and commissioners and selectmen of this town that ar present thear at the same time of the fier'.⁴ At the same town meeting of 14 March 1653 permission was granted to construct a 'sistern',⁵ and on 27 June the same year, the building of a fire was prohibited within certain limits after nine o'clock at night and before five in the morning.⁶ Later still, 29 June 1658, a regulation was

1. W. and Winslow E. Bradford, 'Relation or Journal of a Plantation settled at Plymouth', *Massachusetts Historical Society Collection*, 2nd series, VIII (1802), 3.

2. William H. Whitmore (ed.), *Second report of the Record Commissioners of the City of Boston containing the Boston records, 1634-1660, and the book of possessions*, 3rd ed. (Boston: Municipal Printing Office, 1902), p. 12.

3. Nathaniel B. Shurtleff, M.D. (ed.), *Records of the Governor and Company of the Massachusetts Bay in New England* I, 1628-1641 (Boston: William White, 1653), p. 157.

4. Arthur Wellington Brayley, *A complete history of the Boston Fire Department* (Boston: John P. Dale & Co., 1889), p. 5.

5. Brayley, *Boston Fire Department*, p. 6.

6. Brayley, *Boston Fire Department*, p. 6.

made to prevent people from carrying fire from one house to another in 'open firepans or brands-ends',⁷ and a special order forbade any person taking tobacco, or bringing a lighted match or fire, underneath or about any part of the town-house, except in case of military exercises.

After the great fire in Boston in 1676, an order was issued by the Court of Assistants restraining any person from building within the burnt district before the next General Court 'without the aduice & order of ye select men'.⁸

One of the 'Instructions for the Deputies of ye Generall Court' approved at a Boston town meeting in 1677 was 'That some ordr be taken about regulateinge buildings in ye respectiue townes, yt. by scatteringe they expose not themselves to ye. crueltie of ye. natiues or by their narrow streets to ye. dangr. of fire'.⁹

In October 1679, after the fire which destroyed eighty buildings and seventy warehouses,—'the most woful desolation that Boston ever saw'—the General Court passed the first building law for the town: 'This Court having a sense of the great Ruines in Boston by Fire, and hazard still of the same by reason of the joyning and nearness of their buildings: for prevention of damage and loss thereby for future, Do therefore Order and Enact; That henceforth no dwelling house in Boston shall be erected and set up, except of stone or brick, and covered with Slate or Tyle, on penalty of forfeiting double the value of such buildings, unless by allowance and liberty obtained otherwise from the Magistrates, Commissioners and Select men of Boston or major part of them'.¹⁰

In the following May the court, on a petition from some of the inhabitants setting forth that many persons in consequence of their heavy losses were not able to rebuild with brick and stone, suspended the operation of the law 'for the space of three years only, when it is to be in force, and all Persons are required then carefully to attend the same'.¹¹ At the expiration of that time, in November 1683, the Court again attempted to legislate on the subject.¹²

From time to time in the Boston records are found various privileges and prohibitions regarding building construction.

29 January 1665: 'John Andrws hath liberty for a seller doore prouided it be erected according to Towne order'.¹³

29 July 1678: 'Libertie is granted to John Turner to set vp two steps before ye dore of his house, neere ye Comon,—or three steps at the most'.¹⁴

In 1680 the Boston selectmen ordered 'that none presume to make cellar dore or staires upon the towne land without the aprobation of some of the Selectmen upon the penaltie of 20s. in money and that noe cellar dore shall extend for the future into any streete above three foote and a half from the house to which it belongs.'

'Ordered yt noe psn shall annoy the street by wast water from their pumps or otherwise'.¹⁵

13 February 1683: the General Court 'Ordered and Enacted, that whosoever shall so Build, shall have liberty to set half his Partition-Wall in his Neighbours Ground, leaving Jagges in the Corners of such Walls, for the Neighbours to Adjoyn their Building to; And that when the same shall be Built onto, the Neighbour Adjoyning shall pay for half the Wall so far as he shall Adjoyn'.¹⁶

8 September 1684: 'Thomas Larkinge Barbr haueing opened a shop & set out his windowe ouer the Towne land—is fined 20s. & to pay 20s. p. weeke till his windows be taken downe', and the same day Mr. Brumfeild was ordered to take down 'a paire of staires upon the towne land before his new bricke buildinge'.¹⁷

Among the 'severall Rules, Orders and By-laws' adopted at a town meeting in Boston 12 May 1701 it was 'Ordered, That no person shall Erect or set up any Pentice, jetty or Pandal over any of the Streets, lanes or highways of this Town, of less that eight foot in hight from the ground.'

'Ordered, That no person whatsoever shall hereafter Erect or set up any House of office or Easement within this Town, or suffer the same to continue being already Set-up, or standing within forty foot of any Street lane or high way, or the dwelling house, Shop or well of any neighbour, unless the same be vaulted Six foot deep, and Sufficiently enclosed or otherwise secured.'

'Ordered, That no person shall hence forth make and fire any lime Kiln or Erect and burn any brick Kiln, but in such place and places as the select men for the time being shall approve and allow of.'

'Ordered, That from hence forth no person whatsoever shall digg any Cellar, erect any building or fence, or remove any landmark, next adjoyning or bordering upon any highway, street lane or other Lands belonging or appertaining to this Town, untill two or more of the select men for the time being, or such other persons whom the Select men or the major part of them shall appoint there

7. Brayley, *Boston Fire Department*, p. 9.

8. William H. Whitmore (ed.), *A report of the Record Commissioners of the City of Boston containing the Boston records from 1660 to 1701* (Boston: Rockwell and Churchill, 1881), p. 106.

9. Whitmore (ed.), *A report . . .*, p. 110.

10. William H. Whitmore (ed.), *The colonial laws of Massachusetts* (Boston, 1887), p. 269. Reprinted from the edition of 1672 with the supplement through 1686.

11. Whitmore (ed.), *Colonial laws*, p. 278.

12. Whitmore (ed.), *Colonial laws*, p. 307.

13. Whitmore (ed.), *A report . . .*, p. 29.

14. Whitmore (ed.), *A report . . .*, p. 122.

15. Whitmore (ed.), *A report . . .*, p. 141.

16. Whitmore (ed.), *Colonial laws*, p. 309.

17. Whitmore (ed.), *A report . . .*, p. 171.

unto, shall have viewed set forth and determined the bounds thereof.¹⁸

The following September a similar set of bylaws was passed omitting some of the paragraphs adopted in May.

In May 1714 it was ordered that 'No person whatsoever, Shall be permitted to make or Sett up any Such Gutter, or to Continue any Such, being already made and Sett up, for the conveying of water, from any of their Houses to fall into any of the Street, Lanes, or Highwayes of the Sad

Town [Boston] other then Such, as Shall be So made, as to convey the water thro drop-gutters or Trunks, Close to their respective Houses—So as to deliver or Cast the Same, not exceeding four feet distant above the Surface of the Earth, and at the Edge or Side of the respective Street or Highway.'¹⁹

Rules, orders, and bylaws adopted by the freeholders and inhabitants of the town of Boston were published in 1786 in a pamphlet, and this is supposed to be the first time they were published as a whole.

18. Whitmore (ed.), *A report of the Record Commissioners of the City of Boston containing the Boston Records from 1700 to 1728* (Boston: Rockwell and Churchill, 1883), p. 9.

19. Whitmore (ed.), *A report . . . 1700-1728*, p. 9.

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Jean Alazard, *Le Corbusier* (New York: Universe Books, 1960), 13 pp., 99 illus., \$1.50. Universe Architecture Series.

Françoise Choay, *Le Corbusier* (New York: George Braziller, 1960), 126 pp., 87 pls. \$3.95. Masters of World Architecture.

Klaus Frank, *The Works of Affonso Eduardo Reidy*, introduction by S. Giedion (New York: Frederick A. Praeger, 1960), 144 pp. \$11.50.

Those few books written about Le Corbusier have never been a match for the architect's own publications, and the present group is no exception to the rule. Mme. Choay's selection of illustrations, mostly from the photographs of Lucien Hervé, tends to be tasteful, at least in the sense that they heavily underscore the contemporary fashion for *brut* surfaces, and the too-few illustrations of the old Purist-styled buildings have likewise been chosen with an eye for appearances and surface qualities. While such operations clearly show the distance traversed by modern architectural fashions in the last thirty years, they do not come to grips with the essential qualities of the architect's work. In this respect M. Alazard is more fortunate, in that his collection of illustrations was in fact 'dictated by the Master himself'. Actually his is not a new book at all, but simply the American edition of the book that appeared in the Astra-Arenarium collection (Electa Editrice-Milano-Firenze) almost ten years ago, with no new additions save for a photo of Ronchamp on the cover, and three in the text. The plates still show the Marseilles Unités d'Habitation under construction or in model form, and there

is, of course, no reference to or illustration of the work of the last decade. Unlike the plates of Mme. Choay's book, these do, however, show the many sides of Le Corbusier's activity. The selection of his vigorous sketches, and their order of appearance, effectively intermingled with photographs of architecture, painting, sculpture, and furniture (equipment, to use a more exactly Corbusian expression), gives even the casual student a vivid and just idea of his genius. Taken together, the slightly out-of-date collection presented by M. Alazard and the chic, up-to-the-minute selection offered by Mme. Choay are complementary, and under other circumstances might represent sensible acquisitions for anyone wanting one or two modest volumes on Le Corbusier.

Many of the shortcomings of Mme. Choay's presentation of Le Corbusier would seem to be attributable to a careless publisher. The uneven quality of the reproduction is made to seem minor by the colossal blunder of misplacing plates 1 and 45; plate 1, some sketches of the High Court at Chandigarh, is made to read 'Sketches during a trip to Greece, c. 1910', and plate 45, a sketch of the Propylaea, is labeled 'High Court . . .'. In view of the growing reception that this series of publications has met with in the popular press, such technical faults, together with a generally crude layout of text and illustrations, should be noted here. Both the authors and the readers deserve better treatment.

However, in the face of *Creation is a Patient Search*, these two books become (and not altogether deservedly, either) irrelevant. As a familiar and by now almost nostalgic species of retrospective scrapbook, this latest publication by Le Corbusier, with himself as the hero, bears a slight resemblance to the smaller sequence of plates that he chose for the above-mentioned Alazard volume, especially in the way in which the various media are intermingled in the illustrations so as to produce startling and unexpected contrasts. However, there is a greater similarity between his new publication and two more significant prior efforts: the *New World of Space*, a publication for The Institute of Contemporary Art (Boston,

1948) and the second special Le Corbusier number of *L'Architecture d'aujourd'hui* of the same year. These two quasi-autobiographical documents offered a condensed, though not necessarily monolithic view of the artist, his works and ideas. The graphic density of these two works, together with the even more concentrated *Creation is a Patient Search* is in striking contrast to the six volumes of the *Oeuvre complète* that Willy Boesiger has brought out over the years beginning in 1929. The familiar Boesiger series is a leisurely chronological perusal of Le Corbusier's architectural work, with buildings and projects (paintings have been introduced only in the more recent volumes of this series) presented in a broad and restful format. *Creation is a Patient Search*, and to a lesser degree its aforementioned predecessors, is instead a dense, frantic effort to achieve a remarkably complete synthetic self-portrait in a telegraphic visual style which is, especially in the first two-thirds of the book, stylistically reminiscent of a Verga or Hemingway tale. While there is an effort for chronological organization throughout the book, one comes away with a feeling of the totality of Le Corbusier's work rather than of the sequence of his efforts or the growth of his style. And despite its very nearly all-inclusive quality there are, nonetheless, a number of elisions, some of which may very well prove to be fortuitous, but others of which I feel are significant.

Le Corbusier here thrusts the totality of his person and genius upon the reader in very nearly as irrepressible a fashion as was recently done for Frank Lloyd Wright in the *Drawings for a Living Architecture*. In effect the reader is offered a kaleidoscope of details and close-ups more than a survey or panorama. The captions and bits of text provide a running sound track reminding one of the various battles and manifestoes that originally accompanied the efforts. There is not a great deal of new material, though there are some splendid color reproductions of paintings (unfortunately none of the heroic Purist period), and much of the familiar calligraphic or photographic material is here reproduced better than it has been in earlier works.

The mellowness of the title is deceptive, at least to anyone not already acquainted with Le Corbusier's manner of expression; haughty, passionate, terse, and sarcastic. The *Patient Search* is something concealed below a tough outward surface, the fiber that sustains the 'life spent in fifty-two years of struggles, failures and bitter opposition'. To the younger reader whose memory or knowledge of architectural events does not extend back more than a decade, this belligerence will certainly seem puzzling if not altogether cranky. In particular, the younger American reader will have had no firsthand experience with those frustrating institutions of French *haut bourgeois* culture, the Academy and the École, whose established interests have traditionally placed themselves in the way of creative endeavor. A whole generation has grown up in the last decade for whom modern architectural expression is no longer a cause to be defended or championed, chiefly because it has—at least in some of its aspects—been generally accepted. But for Le Corbusier success has been capricious and tentative, and from official quarters praise has been patronizing when not simply hollow. Hence his sarcastic reactions (p. 192) where B.-H. Zehrfuss, one time Grand Prix recipient, Architecte en Chef des Bâtiments civils et Palais nationaux, and co-architect of the Corbusian parody for UNESCO in Paris, is a target for Le Corbusier's pungent sarcasm, a blast made poignant in its bitterness by the fact that ten years ago the same M. Zehrfuss provided a testimonial introduction to the special Le Corbusier number of *L'Architecture d'aujourd'hui* mentioned earlier. The substance of Zehrfuss's slight of Le Corbusier is trifling in the extreme, yet altogether typical: no more than a few casual statements in a newspaper article hinting that students might well abjure those aspects of the Master's work that are strongly imprinted with individuality or personality, such as its '*caractère quelque peu baroque*'. As with much academic carping and hairsplitting, the words are sour

chiefly by virtue of their patronizing context and veiled motives rather than through their literal substance which, under different circumstances, might otherwise ring true. It is here that the reader can well refer to the perceptive introduction to this book, 'Sketch for a Portrait', by Maurice Jardot, who aptly sums up the manner of frustration that has been the fortune of Le Corbusier, but which has quelled many a French architect in past generations: 'Honour and success have admittedly not been denied him, but his real victory . . . a victory unobtrusive, but broad and decisive, has been stolen from him by those who continually and brazenly wear his mantle as their own . . . and it almost always seems that the principles and solutions which he has elaborated are assigned for others to put into practice.' With this in mind, such otherwise harmless statements as the following by Zehrfuss, that '*ce que peut sembler à certains encore plus étonnant, les chefs de file de cette architecture nouvelle sont presque tous "Grands Prix de Rome"*' are revealed for their true intention as petty jibes and nuisances aimed directly at France's single great modern architect. These constant irritations have, however, kept Le Corbusier steadily on the offensive, not the defensive. Unlike his distinguished predecessors in French architecture, the Perretts and Viollet-le-Ducs, the Labrousstes and Ledouxes, Le Corbusier's efforts have not been smothered by this customary academic campaign of containment, nor has he ever allowed bitterness to stifle his talents. The visionary thrusts towards a new architecture, the most basic of his achievements like the schemes for Paris, Algiers, Nemours, S. Dié, and La Rochelle, to mention only those on French soil, have been of course ignored when not rejected and denounced. To the rejected project for the League of Nations in Geneva is added the humiliation of having his proposals for the U.N. and UNESCO turned into a travesty in the final realization. For years his consolation was the construction of a few houses for sympathetic clients; then, after the war came the Unités d'Habitation in Marseilles, Nantes, and Berlin, and finally the plans for Chandigarh, which, several thousand miles removed from Paris, is a partial vindication (there can never be total compensation) of his earlier neglected monumental architectural schemes. True, Chandigarh differs from these earlier proposals, yet the forms of the present are unthinkable without the experience of past effort in planning, and in painting as well.

In fact, the cohesiveness of Le Corbusier's architectural techniques, early, middle, and recent, becomes even more apparent when the whole is seen in the present volume in close conjunction with the painting, and with Savina's sculpture after Le Corbusier's drawings. If one wishes to understand the architect's response to the site in Notre-Dame-du-Haut at Ronchamp, and to know the source of the means employed in transcribing that response into architectonic form, *Creation is a Patient Search* can offer several suggestions, the most incisive of which can be found on page 246, where a photo of an exhibition installation shows the second of Le Corbusier's and Savina's sculptures of 1945 mounted in front of a perspective view of the 1930 Algiers proposal. Such chronological telescoping of his creative output, with the give and take between the various media exploited as can only be done in the imaginary museum of a modern picture book, cannot help but lead to deeper comprehension of Le Corbusier's visions and motivations than any amount of verbal explanation. Garrulous descriptions of his works and philosophy tend to be a bore when they are not outright misleading. Mme. Choay's text, with its effort to explain and justify the ideas and the buildings, is a typical instance of the inevitable redundancy in trying to do more than simply present Le Corbusier. His ideas by themselves are so terse and wrapped up in personal language that they are not easily paraphrased, and like them the buildings are so absolutely clear and true in form, so complete as an architectonic statement, that the critical commentary tends to obscure rather than reveal. How different this staccato concentration

is from the expansive, discursive, flowing inventions of Frank Lloyd Wright! In effect, the forms that result from a Le Corbusier building are so epigrammatic as a proposition or simple statement of fact that they require little more from the critic than a citation of date, place, presumed inspirations, and, perhaps, a fortuitous comparison. Along with this distilled Gallic clarity Le Corbusier has also managed to be the effective historian of his personal taste and stylistic inclinations, witness the frequent illustration of sheets from his *carnets de Voyages*, as well as his inspired genius for preparing this present imaginary museum of his own work. Whereas Wright has generally tended to conceal the many sources of his stimuli, Le Corbusier, with an occasional exception, is only too willing to take the critic by the hand.

There have been, however, a few blacked-out areas in his past which not even *Creation is a Patient Search* reveals. Le Corbusier's immensely important series of houses around his native town of La Chaux de Fond, done before 1918, are not mentioned in the section devoted to his other activities of that period (pp. 18-47), though one of them, the Villa Schwob of 1916, was illustrated in *Vers une architecture*. The epochal second Citrohan house project of 1922 is illustrated (p. 66) but for some reason not specifically identified (nor can I find mention of it in the text), and its more earth-bound predecessor of 1920 is not illustrated at all. In fact, except for the Domino scheme of 1914 and one other, no architectural project is illustrated until the 1922 house at Vaucresson, which carries the caption: 'This house at Vaucresson really marked the beginning of Le Corbusier's architectural research. Until then he had had no creative ambitions of any kind. He was thirty-one when he embarked upon a career which inspired a new approach to architecture.' The claim, whose truth is more poetic than historical, does not fit the facts. Having been born in 1887, Le Corbusier was in fact thirty-five in 1922, four years older than indicated here. Not having seen the French edition, I cannot say whether this is an accidental or deliberate bit of camouflage. I am reminded of H. R. Hitchcock's article, 'The Evolution of Wright, Mies and Le Corbusier', *Perspecta* 1 (Summer 1952), 8-15, in which it is suggested that Le Corbusier's maturity begins, a trifle tardily, only at the age of thirty-five. Is it possible that Le Corbusier knows of this and is slightly piqued? Furthermore, the number of architectural works suppressed would seem to indicate a marked desire to forget his early career; for instance, the following are not mentioned, the Ledouxlike Ateliers d'Artistes of 1910, a number of elaborations of the Domino scheme revealing a post-Sezession influence, the unique 1915 Pont Butin project, and the Troyes and Monol row house projects of 1919 (all illustrated in the *Oeuvre complète* 1, 22-30). The other early architectural project that is preserved in the new canon established by *Creation is a Patient Search* is the project for a villa for Paul Poiret (p. 45), once dated 1916 (*Oeuvre complète* 1, 27-28, where it was also identified as *Villa au bord de la Mer*), but now more plausibly given to the year 1921. The Poiret project is, in any event, closely related to the second Citrohan project, which was in the Salon d'Automne of 1922. Curiously enough Le Corbusier now captions this Poiret project 'First contact with perceptive clients. 1921'. The mystery, then, concerning Le Corbusier's early career as an architect deepens despite the fact that the pre-Purist buildings are becoming more familiar through magazine illustrations, and despite the relative wealth of sketchbook material republished in this new book documenting his travels in eastern Europe at this epoch, and of the *fin de siècle* Art Nouveau and Sezession style decorative work. On page 23 is a photograph of a watch which earned Le Corbusier a Diploma of Honor at Turin in 1902.

Some other omissions or changes of emphasis can be quickly enumerated: the Modulor, so much to the fore in the early 1950s, is now barely accorded sustained recognition (pp. 158-159), and its presence is felt chiefly in the habitual shaping and familiar scale relationships of the newer works, such as the cell wing of the La

Tourette monastery or the syncopated façades of the Chandigarh Secretariat, or, a little more explicitly, in the wall opposite the entry bridge of the Nantes *Unité* (p. 273). Light control and the whole question of tempering the effect of the glass curtain wall is still a recurrent theme, though it is not treated as a special issue as was done in some of the volumes of the *Oeuvre complète* IV (1938-1946), V (1946-1952), where the evolution of the *brise-soleil* was carefully justified. In other words, there seems to be a shift of emphasis both in ideology and in formal invention in the period since about 1950-1952, and we find that his propensity towards the rationalizing of every new form has diminished. Ronchamp is now presented as 'completely uninhibited architecture'. However, we should not call his current work totally or even predominantly subjective. The consequences of the machine aesthetic which has dominated all of his recognized architecture is still very much present, and the air photograph of the Monastery of La Tourette (p. 265) is exactly the sort of abstract marshaling of architectural forms around significant voids that characterized the greatest of his works of the 1920s, the Villa Savoye (illustrated earlier in this sequence of photos (pp. 260-262). A further comparison of this aerial perspective of La Tourette with the dramatic model of the 1928 Moscow Centrososyos (p. 88) again shows that *plus ça change, plus ce rest la même chose*. The last extensive section of *Creation is a Patient Search* is an eloquent sequence of images under the title 'No Beginning and No End'. Starting off with painting and moving on to sculpture, proceeding for the most part chronologically, the sequence shifts at last to architecture, using the *pilots* of Nantes for a transition, but returning to the twenties in the garage and entry of the Cook House (p. 256), and subsequently moving on to Garches, Poissy, and Le Corbusier's own penthouse. Then there is a sudden jump to La Tourette and, just as inexplicably, back to Ronchamp via its door handle. The evolution continues at Nantes and Chandigarh, each succeeding image revealing a polyphony of surfaces, structures, and compositions that are simultaneously pictorial and architectonic. This material leads to the Brussels *Poème Electronique* and, again backward in time, to the roovescape of Marseilles, its aspects alternately gay and brooding, which inevitably evokes the succeeding images of the serene yet latently surrealist De Beistegui penthouse ('sur les toits de Paris') of 1930-1931. This leads finally, via *brise-soleil* of several periods, to a run of sketches for Buenos Aires, Montevideo, São Paulo, Nemours, and Algiers, all of which is terminated by a disturbingly unresolved trinity of drawings shifting famous buildings out of their normal habitat. This section of *Creation is a Patient Search* from page 217 to 298 is its undeniable climax. All that remains before the end are some words from a BBC interview, some photographs of a crowd at a Sorbonne lecture, a final proposal, and the almost ritualistic bibliography of Le Corbusier's writings, which may well be as numerous as his unexecuted buildings. But these fragments can be no more than a postscript to the penultimate series of images, which is a compelling, almost Proustian, recall of the past into the present. And when it is over, there is really nothing left to say.

Since the late 1930s Affonso Eduardo Reidy has been one of the most diligent and successful of Le Corbusier's followers. His efforts have tended to be pushed somewhat into the background by the more provocative if occasionally rather shallow-seeming work of his fellow Brazilian, Oscar Niemeyer, himself an important and unique offshoot of Le Corbusier's middle period of the 1930s. Regrettably, Reidy's talents have not been employed at Brasilia, where their sturdy qualities would have made an effective contrast with the extravagant imaginative flights of Niemeyer. This presentation of Reidy's work is a very effective and useful progress report, handsome in format and layout, with an introduction by Professor Giedion; and it gives us a clear notion of Reidy's development over the last two decades.

The nature of the battle waged for contemporary architecture in Brazil has been rather less intense and challenging than that which has engaged Le Corbusier's energies—the problem being the very basic economic one of getting the building built, and properly at that, once the design is in. The *carioica* temperament seems to be one strongly attuned to vigorous architectural inventions, which is limited only by an extraordinarily lackadaisical attitude towards construction and completion schedules (Brasília, so far, seems to be the mammoth exception to this rule). As a result, this offering of the work of Reidy is largely made up of projects awaiting realization together with buildings in various states of unfinish.

One building here, a hostel for homeless persons called the Inn of Good Intentions, antedates his collaboration on the Rio de Janeiro Ministry of Education and Health. It was designed with Gerson Pompeu Pinheiro and the engineer Emílio Baumgart and built in 1931–1932. Though the plan clearly suggests the academic ordering of things, the one photograph shows an elevation of pure International Style leanings, if not one that is especially Corbusian. I would be inclined to assume that there would be other works by Reidy in the five years intervening before the Ministry of Education and Health design of 1937, but nothing is mentioned in the present work. The aforesaid Ministry and its international significance certainly does not need underscoring here, nor are there any especially noteworthy features in any of the immediately succeeding projects. It is only with the little Community Theater built in the Rio industrial quarter of Marechal Hermes in 1950–1951 that we find a significant personal work by Reidy that in any way rivals Niemeyer's admired São Francisco, Pampulha of 1943. It is a work of character with cleanly expressed profiles and silhouettes and an interesting if not always convincing layout, which already seems somewhat dated in style. The unbuilt student theater project of 1955, which is presented on the immediately succeeding pages, with its contrasting rectangular forms and its possibly inappropriate glass curtain wall for the entrance façade, helps to reinforce the slightly outmoded impression given by the earlier Marechal Hermes Theater.

However, it is with four major building groups that one should now judge the present progress and achievement of Reidy's career: the famed Pedregulho Residential Neighborhood of 1947 with its serpentine hillside slab which owes its inspiration to Le Corbusier's Algiers project of 1930, and three unfinished works, the similar but more dramatically sited Gávea Residential Neighborhood (begun in 1952), the Experimental School in Asunción, Paraguay (begun in 1953), and the Museum of Modern Art, Rio de Janeiro (begun in 1954, and with one wing now completed). Of the group, it is the museum which appears to be Reidy's masterpiece to date, and as such is worth comparison with the Guggenheim, and with Philip Johnson's Proctor Institute, as well as Le Corbusier's various projects, including the Mundaneum (*Creation is a Patient Search*, p. 87), the 1931 and 1937 projects for Paris, and those actually built at Ahmedabad and Tokyo in the 1950s. Reidy's conception stands up very well in this company. If it has nothing of the sage, ripened mastery of the Le Corbusier and Wright conceptions (needless to say, I am not referring to the latter's questionable execution), it reveals the touch of an inventive if not always realistic and hard-headed designer. Set on reclaimed land alongside the Rio de Janeiro harbor, it will comprise when finished an administrative wing (already completed), a gallery wing whose dramatic raw structure is still unfinished but beautifully illustrated in its present state (the reverse of a 'ruin'), and a theater wing which seems to have not yet been started. The giant concrete frame or rigging into which the galleries will be slipped merits contrast with the High Court at Chandigarh, not for any special reason of surface similarity, but because of the freedom with which the whole fundamental notion of 'cover' has been separated in each building from the package of enclosed spaces underneath or within. And this dominant motif from

Reidy's museum ought to be compared with some of Niemeyer's unabashed portico architecture at Brasília, if only because the former is without doubt a more effective and conceptually modern attempt to create an integrated order for a contemporary building. Indeed a careful study of this album of Reidy's architecture suggests that a re-evaluation of the major figures of Brazilian architecture may be imminent.

It would be gratuitous to try to compare Reidy's work too closely with that of Le Corbusier, and it is certainly not patronizing to suggest that no pupil of Le Corbusier has the remotest chance of equaling the master. To a degree this is because Le Corbusier and his generation have tended to pre-empt the possibilities and aspects of a modern architectural revolution to such a degree that there seems little room, and only a few unwanted crumbs, for a new generation to work with. In a very different way, creation has been and will continue to be a very patient search for Reidy and all his contemporaries.

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Esther McCoy, *Five California Architects* (New York: Reinhold Publishing Corporation, 1960), 200 pp., illus. \$10.00.

This book about California architects, written by a Californian with wide architectural experience, is a welcome addition to the growing bibliography of regional studies in American architecture. Great credit is due the author for bringing together a wealth of personal information and architectural material not previously available. Not only has she firsthand knowledge of the buildings, but she has had the advantage of personally knowing the architects or their close associates and in one instance has had the opportunity to work with the architect about whom she writes. Not every writer on architecture is so fortunate.

Bernard Maybeck (1862–1957), Irving Gill (1870–1936), Charles Sumner Greene (1868–1957), Henry Mather Greene (1870–1954), and R. M. Schindler (1887–1953) are the architects considered. Although they are five individuals, the work is really that of four offices, since the Greene brothers worked closely together, and this is recognized by the division of the material into four chapters. The chapter on the Greene brothers was written by Randell L. Makinson. Of these five men, none of them native Californians, four are nearly contemporary and came to California at almost the same time; Maybeck in 1889, the Greene brothers and Gill in 1893. Schindler, about a generation younger than the others, only settled in California in 1921. By this time the principal work of the others had been done. Maybeck, the Greenes, and Gill are the real pioneers. They laid the foundation on which later claims for a modern regional expression in California architecture are usually based. Schindler, however, was a pioneer in another sense—that of introducing the ideas of Central European modernism, modified somewhat by his association with Frank Lloyd Wright. Although the work of all these men is of interest, there would seem to be no particular reason why just this group should have been treated together. There are other architects in California of the generation of Maybeck, such as Polk and Howard, whose work might well have been included, and surely the picture of the nineteen-twenties and thirties would have been clearer if the work of Neutra could have been considered as well as that of Schindler.

As it stands, the book is a collection of four separate essays. Part of the material was originally prepared for periodical publication, and the language retains a journalistic flavor not entirely to its advantage. There is no introductory material which might have set the architectural scene in California at the beginning of this century,

nor is there any closing summary which might have placed the work of these architects in relation to each other and to their times. The historically-minded reader will find a number of questions unanswered. More detailed stylistic analysis and more thorough documentation would have made it a more useful book. There are no footnotes, although some of the sources are referred to in the text. There is an index, but there is neither a bibliography nor a list of illustrations, both of which would have made the book more helpful to the student. But perhaps it is unreasonable to expect such features in a work of this kind. The book does give an entertaining and often richly anecdotal account of the lives of five important American architects and makes readily available a great amount of excellent illustrative material not previously gathered together.

The illustrations are in fact one of the major contributions of the book. Along with beautiful photographs, including details, the author has introduced a gratifying number of plans and other drawings. Of particular interest are the reproductions of drawings by the architects themselves. Even the lettering on these drawings is of interest, varying as it does from the Arts and Crafts air of the Greenes' to the blockish *de Stijl* character of Schindler's plates. Another very commendable feature is that some of the buildings by each architect are illustrated with enough views to give the reader, who may not have seen the building, a good idea of it in its entirety. Major works such as Maybeck's Christian Science Church, Gill's Dodge House, and the Greenes' Blacker House rightly receive this attention. On the other hand, the historian would have welcomed a few more examples of early works and others which are mentioned in the text but which are not illustrated, possibly because they are not so handsome or intrinsically important. The lack of any numbering system for the illustrations makes cross reference between the text and pictures rather difficult. Nor is it always clear, either from the text or from the illustrations, which of the buildings are still to be seen in substantially original condition. From personal experience of the difficulty of locating buildings by Maybeck in Berkeley, this reviewer would have liked to have had the actual address of the surviving structures given somewhere in the book. Even with the street number it is not always easy to find a building one wants to see in the widespread cities of California.

Features and methods of construction, and technical details of planning are well presented. The author's personal experience in the profession has made it possible for her to give a just appreciation to this important but often overlooked aspect of design. All five of these architects seem to have been interested in the way materials can be put together and to have been progressive and imaginative in their handling of details. Concrete and wood are the two materials with which they were chiefly concerned. Both of these materials they handled extremely well. Brick seems not to have attracted them at all and stone only rarely. In their interest in the nature of particular materials and the way they may best be used, these architects are as truly prophetic as in their concepts of form.

Although the author avoids making any statement about the comparative merit or relative importance of these architects, the reader almost inevitably wants to do so. Are they all of equal importance? What exactly did they have in common? What has been their influence on architecture in California or elsewhere? These are some of the questions one would like to have answered. For this reader the romantic quality inherent in the work of Maybeck and the Greenes seems to belong more definitely to the past than does any aspect of the work of Gill and Schindler. Yet Maybeck and the Greenes are usually considered the forerunners of what is sometimes called the Bay Region Style. Gill's work before the first World War seems extraordinarily prophetic of what was to come in the late twenties and thirties, yet apparently had no connection with it. If Gill had not used round arched openings so often, his work would be scarcely distinguishable from much European work done a decade or so later.

His design for Horatio Court West in Santa Monica, 1919 (p. 96) is singularly suggestive of Dutch work influenced by *de Stijl*. Schindler would appear to have taken up almost at the point Gill had reached about 1920. What was the relationship between them? Mrs. McCoy tells us only that Schindler had visited Gill in the nineteen-twenties (p. 192). Had Schindler seen Gill's work on his visit to California in 1915? There is obviously much more to be known about architecture in California in the early part of this century. Let us hope that this book will stimulate further studies either by Mrs. McCoy or others in this rich field for research.

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Books Received

(Mention of a book here does not preclude its subsequent review.)

- Jean Alazard, *Le Corbusier* (New York: Universe Books, 1960), 13 pp., 99 illus. \$1.50. Universe Architecture Series.
- Peter Blake, *The Master Builders, Le Corbusier, Mies van der Rohe, Frank Lloyd Wright* (New York: Alfred A. Knopf, 1960), xxi+329 pp., illus. \$6.50.
- L. Brion-Guerry, *Philibert De L'Orme* (New York: Universe Books, 1960), 25 pp., 80 illus. \$1.50. Universe Architecture Series.
- Lily B. Campbell, *Scenes and Machines on the English Stage During the Renaissance* (New York: Barnes and Noble, 1960), 302 pp., 8 pls., 15 figs. \$7.50.
- A reprint of the 1923 Cambridge University Press edition.
- Gino Chierici, *Donato Bramante* (New York: Universe Books, 1960), 25 pp., 71 illus. \$1.50. Universe Architecture Series.
- Le Corbusier, *Creation is a Patient Search*, translated by James Palmes, with an introduction by Maurice Jardot (New York: Frederick A. Praeger, 1961), 312 pp., illus. \$15.00.
- Leonard Cottrell (ed.), *The Concise Encyclopedia of Archaeology* (New York: Hawthorn Books Inc., 1960), 512 pp., 160 pls., 16 color pls., \$12.95.
- Cesar Martinell, *Antonio Gaudí* (New York: Universe Books, 1960), 10 pp., 70 illus. \$1.50. Universe Architecture Series.
- Russell Meigs, *Roman Ostia* (New York: Oxford University Press, 1960), 598 pp., 40 pls., 32 figs. \$13.45.
- B. H. St. J. O'Neil, *Castles and Cannon, A Study of Early Artillery and Fortifications in England* (New York: Oxford University Press, 1960), 121 pp., 24 pls., 10 figs. \$4.80.
- Nikolaus Pevsner, *Christopher Wren* (New York: Universe Books, 1960), 40 pp., 72 illus. \$1.50. Universe Architecture Series.

Periodicals Received

Journal of the Royal Society of Arts, London.

No. 5054, Jan. 1961.

No. 5055, Feb. 1961.

Thomas Bennett, 'The Architect's Approach to Engineering in Tall Buildings', pp. 203-226.

Archivo Español de Arte

No. 132, Oct.-Dec. 1960.

Ekistics

This publication prints each month abstracts on the problems and science of human settlements. It is published by Doxiadis Associates, Athens, Greece, but inquiries about it may be directed to the editorial office at 20-A Prescott St., Cambridge 38, Mass. The issue of January 1960 is an accumulated index for the first ten volumes.

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The Utilitarians and the Houses of Parliament

GEORGE H. WEITZMAN*

HISTORIES of the rise of contemporary functional architectural theory take the 1840s as the period of initial ferment and growth.¹ While there was certainly a great amount of maturation during the forties, as may be found in the writings of Pugin for example, even earlier, during the hectic events of 1833 to 1837 centering around the rebuilding of England's Houses of Parliament, the efforts of one group may be found whose architectural criteria seem startlingly contemporary in outlook. This group, the Utilitarians, followed a developed and consistent position throughout the entire period of acrimonious debate; a position that provides cogent evidence of the social roots from which functional criteria took their nourishment.

As spokesmen for the rising industrial bourgeoisie, the Utilitarians had developed into a strong and influential politico-philosophical force. Under the tutelage of such men as Jeremy Bentham, James and John Stuart Mill, they carefully developed and applied the theory of value as the sole consequence of usefulness. This concept was due to receive much attention in an era increasingly aware of the rigors of modern industrial economy; and the political facts of the day—middle-class reform, repeal of the Corn Laws, *et al.*—were brought to fruition chiefly by the persistent efforts of these philosophical radicals.

Within Parliament the Utilitarian cause was espoused by many, but Joseph Hume stands as the radical spokesman of greatest vigor and activity. Hume was a man whose lifelong task seems to have been exposing extravagance and abuse, most particularly in the government's fiscal affairs, but his parliamentary activity was much broader. Such diverse causes as Catholic emancipation, reform, abolition of flogging, and repeal of the laws forbidding the export of machinery were all championed by

Hume. Outside Parliament, he found time to become Vice-President of the Society of Arts, in which role he unhesitatingly backed the Crystal Palace project when its very existence was under attack.

Hume spoke more freely—and perhaps less well—than any of his parliamentary contemporaries. Thus it is not surprising to find him taking an active role, when, in 1833, Parliament decided to consider the possibility of building a new House of Commons. For centuries the Lower House had convened in old Saint Stephen's Chapel, but with increasing representation many politicians had come to realize the need for some revision in that ancient, maze-like complex. Accordingly, Parliament appointed a committee in 1831 to consider whether or not a change should be made. Its decision, 'that the House of Commons did not afford adequate accommodation for its members',² was passed on to the full House for its opinion.

The House was convened to discuss these matters on 7 March 1833. The Reform Bill of 1832 had made things all the more urgent, representation having been greatly increased by its passage. On this date Hume rose to ask for a new House of Commons. From the outset his call for change was clear. Many gentlemen, he stated, 'cherished a strong recollection of events that had passed in the present House of Commons, and were, in consequence, very anxious that no change should take place.' The Hansard record continues, 'He [Hume] could readily enter into the feelings of Gentlemen on that point, but in his opinion utility was what they ought principally to have in view.'³ There had been a proposition to remove the House to another situation, and Hume felt satisfied that a better building might be erected elsewhere.

Such a statement could not but be cautiously received by the many conservative, traditionalist parliamentarians. Typical of the reaction such a suggestion evoked from the House was that of Philip Howard, who objected most vehemently to 'pulling down that building hallowed by its

* This article is published posthumously. The author was a graduate of the School of Architecture (1957), Columbia University, and had won a William Kinne Fellows Travelling Fellowship, of which this paper is a result. His family has established a memorial fellowship for graduate study in the history of architecture in his name at the School of Architecture.

1. The one exception to this is *Origins of Functional Theory* by Edward DeZurko. He traces the origins back as far as Socrates, specifically denying the impact of the industrial revolution upon this growth.

2. Great Britain, *Report of the Select Committee on the House of Commons Building, Parliamentary Papers* v (6 October 1831).

3. Hansard, *Parliamentary Debates* xvi (1833), 373.

recollections for the purposes of erecting in its stead a semicircular theatrical edifice like that proposed.⁴

A committee was established, composed of thirty-four parliamentarians, to make further investigations. It was Joseph Hume, who, as presiding member, questioned the distinguished witnesses. Interrogation followed along the lines of his previously declared position, and, further, showed the point of view he was to take after the tragic fire of 16 October 1834. From the beginning his questions were materialistic and rational. Thus he asked Sir John Soane: 'Is it not probable that you will be more successful in having a good sound by having a round end than by having a square?'⁵ And repeatedly he inquired into the desirability of moving the House to a completely new location; this for reasons of obvious utility, since the existing site was of such a constricted nature.

Such an idea was evidently not considered by the twenty-two architects who submitted plans for a new House to the committee. All the drawings appended to the report are for the existing site. It is, therefore, to their credit and honesty that when questioned the architects were, to the man, in favor of moving the site. John Deering, George Allen, John Crooker, and Francis Goodwin were quick to admit the inconvenience of the existing site insofar as its physical properties were concerned. Such considerations as the soil, foundations, light, air, and accessibility (both to parliamentarians and the public) could be better satisfied in other locations.

On 13 May 1833, the committee reported its resolution. The two points that form their report bear the handmark of Joseph Hume:

RESOLVED That it is the opinion of this Committee that the present House of Commons does not afford adequate accommodation for its members, and that no alterations or improvements could be made in the present House which would afford adequate accommodation, due regard being had to the Health and General Convenience of the Members, to the dispatch of public business, and to the expense to be incurred. . . .

RESOLVED That it is the opinion of this Committee that the imperfect Ventilation of the present House is most injurious to the health of its Members. . . .⁶

This, then, was the situation on 16 October 1834. Parliament, reluctant to heed the urgent requests of its own chosen committee, had voted against rebuilding the House of Commons. The disparate complex of buildings, whose earliest parts dated from 1265, bulged with the increased activities of the day. St. Stephen's, too small to accommodate the increased House membership, was only a symptom of the general inadequacy of the whole physical plant. Worse, from the standpoint of the health and welfare of

its members, were the ever-increasing piles of papers and records housed within the general complex. Unfortunately, no one had anticipated the great danger of fire inherent in such a constricted physical situation. Joseph Hume, in 1833, had done his best to remove at least the House of Commons from its Westminster environs, but the others, contented in their semi-ecclesiastical surroundings, had been all too reluctant to change anything.

At about 4:30 p.m. on 16 October, two men, accompanied by the deputy housekeeper, Mrs. Wright, went to make their daily check of the House of Lords. Although one of them felt heat from the Lords' door, they evidently took no notice and left. It was not until 6 p.m. that the wife of a doorkeeper noticed a light flickering under that same door and called the fire department for help.

The fire raged all night. It could be seen from the far distant sections of town, and, as the word spread among its populace, London became an anthill of activity centered around the fire. The crowd seemed to enjoy the spectacle and cheered heartily as various sections of the ancient structure gave way. *The Times* of London featured stories filled with lurid details. On 17 October their reporter asserted, 'the conflagration, viewed from the River, was particularly grand and impressive.'⁷ And on the following day: 'the devastation was too general and complete to present to the eye of the spectator any of those combinations of shattered walls and tottering roofs which sometimes reconcile us by their terrible beauty to the very destruction which has created them.'⁸

But to many the catastrophe served only as sad proof that Joseph Hume had not been wrong after all. A cabman was overheard jesting with his fare. 'Some say it's done by the builders to make a job for themselves,' he said, 'and I did hear, too, as it was Mr. Hume as set 'em on—'cause you see, Sir, the members wouldn't build a new House, 'tho Mr. Hume has ax'd 'em ever so many times to do it, and told 'em how wery uncomfortable he was in the old un.'⁹

With the Parliament in recess, all immediate comment came from the press. All reports seemed to recognize the need for a new structure, though few showed any concern about its possible architectural character. The only newspaper article dealing with the question of style was an editorial in *The Times*, '. . . utter[ing] a wish that the dilapidated parts may be made in a style harmonizing with the original building, instead of exhibiting a heterogeneous mass of architectural erections, in which taste, chronology and convenience were equally set at naught.'¹⁰

On 19 February 1835, the Houses were called into session. King William IV made his opening speech on 24 February, and as was to be expected, he touched on the need

4. Hansard, *Parliamentary Debates* xvi (1833), 377.

5. Great Britain, *Report of the Select Committee on the House of Commons Building*, *Parliamentary Papers* xii (13 May 1833), 12.

6. Great Britain, *Report of the Select Committee on the House of Commons Building*, *Parliamentary Papers* xii (13 May 1833), front page.

7. *The Times* (London), 17 October 1834.

8. *The Times* (London), 18 October 1834.

9. *The Times* (London), 18 October 1834.

10. *The Times* (London), 17 October 1834, editorial.

for a new physical plant. However, he seems to have been completely unconcerned with either the location or type of building to be erected, giving complete authority to the Houses in these matters.¹¹

Accordingly, on 2 March, the Chancellor of the Exchequer set up a Select Committee on Rebuilding the Houses of Parliament. This committee was to be composed of 'Gentlemen who from their habits of business and position in the House would be most likely to give satisfaction.'¹² As soon as the subject had been broached, Joseph Hume, indefatigable as always, wanted to know whether it was in the competence of the committee's authority to change the site. Chancellor Robert Peel, a conservative man, wanted nothing of such an idea, thereby quashing Hume's radical proposal for the time being.

The entire proceedings of this committee will never be completely known. Its final report touches only on the evidence taken, and then gives the final resolutions. No record was made of its day-to-day deliberations, so that aside from comments made in later discussions, the activities of its various members are a matter of guesswork. There were twenty-three M.P.s on the committee, the most active of whom were Charles Hanbury-Tracy, Joseph Hume, and possibly Sir John Cam Hobhouse.

The most influential position on the committee was held by Sir Robert Peel. As Chancellor he could readily influence other members, but judging by his personal correspondence during this period, he took a very minor role in the deliberations.

Hanbury-Tracy, later to be Lord Sudeley, was evidently an amateur architect. His home, Toddington Manor (fig. 1), was probably his own design, although there is some confusion on this matter. He undoubtedly had help from John C. Buckler, but most likely only in the technical aspects. The basic concept is probably Hanbury-Tracy's, a Gothic pastiche, extensive in its resort to historic allusion. Contemporary reports speak of its highly picturesque qualities, and one can assume that Hanbury-Tracy was very proud of his creation. His pride was bound to overflow into the committee's discussions and, judging by his subsequent behavior as a juror, he must have played the part of a self-appointed expert.

The committee met from 2 March to 3 June, at which time it reported its findings in favor of an open competition. Of the thirty-four resolutions, only two are of interest here. Number 26 states 'That the style of the buildings be either Gothic or Elizabethan,'¹³ and the other, number 27, names the site and orders the printing of a plot plan. The idea of an open competition was most

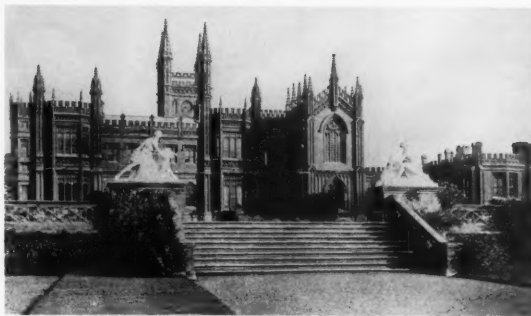


Fig. 1. Toddington Manor, Glocs., built by Charles Hanbury-Tracy (photo: author).

likely Hume's, for he stated in a later speech that he was originally one of the two members on the whole committee who wanted it.¹⁴

The decision to build the Houses in the 'Gothic or Elizabethan' style seems to have been a consequence of the site and its proximity to such venerated buildings as the Abbey. Associations of this nature were bound to strike a sympathetic chord in the mind of Hanbury-Tracy, who most likely was the prime advocate for the style resolution. Only four printed documents remain from this period of the committee, and it is hardly likely that any of them had a decisive influence on the course of its deliberations.

The first document was a plan, drawn by Robert Smirke, to be used as a basis for the committee's discussions. At the time of the fire Smirke was official architect of the Board of Works; an eminently successful architect, if somewhat dull, whose chef-d'oeuvre had been in the Greek Revival style. However, a good architect had to know all the styles, and Smirke was no exception to this rule. He had designed two residences, Eastnor and Lowther Castles, which proved his competence in the Gothic manner.

Smirke developed a plan and gave it to the committee (fig. 2). It shows turrets and other Gothic features, although earlier drawings seem to indicate that he had at least toyed with the idea of a classical building. The program for this scheme is much more limited than the one finally decided on, and elevations, the most influential of all drawings in matters of style, were not submitted. This, therefore, could hardly have had a determining influence on the committee.

The second document is an open letter written by Sir Edward Cust to Sir Robert Peel on 31 January 1835, in which he requests a limited competition. Throughout the length of the letter Cust makes his predilection for the

11. Hansard, *Parliamentary Debates* xxvi (1835), 64. '... and it will be my wish to adopt such plans for your permanent accommodation as shall be deemed on your just consideration fitting and convenient.'

12. Hansard, *Parliamentary Debates* xxvi (1835), 470.

13. Great Britain, *Report of the Select Committee on Rebuilding the Houses of Parliament*, *Parliamentary Papers* xviii (1835), front page.

14. Hansard, *Parliamentary Debates* xxxi (1836), 235.

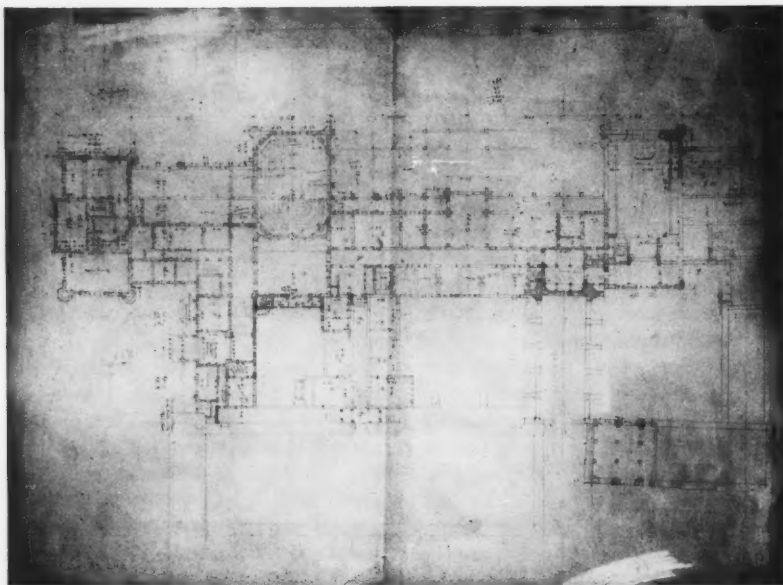


Fig. 2. Plan for New Houses of Parliament, by Robert Smirke, 1834.

Gothic style abundantly clear.¹⁵ However, judging from Peel's answer to Cust, he was not very impressed by the plea.¹⁶

The third is an article in *The Gentleman's Magazine* of November 1834 and signed by AJK, 'indulging the hope that in the restoration or rebuilding of the Parliamentary edifices . . . the Gothic style should . . . be adopted in the restorations.' This article might have been widely read, but the date of its publication is too early to have had any real effect on the course of the committee's deliberations.

The same may be said of the article already quoted from *The Times*, written the day after the fire, in which the editorial requests a style harmonizing with the original building.

15. Letter to the Right Honorable Sir Robert Peel, at the R.I.B.A., under Pamphlets on Houses of Parliament. 'The imaginary traveller would doubtless conclude . . . that the stock in trade of a British Architect consisted of a few columns of each of the five different orders. . . . In the absence of a well stored mind, merit is sought to be obtained . . . because of undoubted Grecian authority.'

'All the feeling that was excited on the subject [the fire] was for the safety of Westminster Hall and the Abbey. Yet these last were the works of times reputed barbarous.'

16. In answer to Cust's request for a limited competition he asserts there is one consideration 'and one frequently omitted in architectural proposals, namely—who is to pay for the new building? . . . I think you will find the House disposed to claim a much greater share in the deliberations as to the extent and plan . . . than you are willing to assign them.' 8 February 1835. British Museum MSS. 40413 f134.

Taken as a whole, these documents might have had some influence on the committee. But it is entirely probable that the style resolution was incorporated in response to a request by Hanbury-Tracy, and with only a minimum of discussion. This is independently corroborated by the subsequent difficulty this same committee had in determining what the Elizabethan style of architecture was. Prolonged discussion would undoubtedly have caused some definition and clarification. This evidently was not the case.

The story of the competition is well known, but a summary might be appropriate. A commission to act as a jury was established, and the time allowed was six months. There were ninety-seven competitors and four premiated submissions. First prize was given to Charles Barry (fig. 3), the other awards going to John C. Buckler (second) (fig. 4), W. David Hamilton (third) (fig. 5), and William Railton (fourth) (fig. 6). Aside from a minor complaint about the delayed issuance of the plot plan, and a consequent extension of the submission date due to this delay, the contest went very well and with little complaint.

As soon as the announcement of the victorious submissions had been made, however, there was a tremendous uproar from the disappointed candidates. All sorts of jibes were hurled at the prize drawings, and every manner of reason given by the losers to justify a new competition. Pamphlets were issued by the more literary minded unfortunates, in which every inch of Barry's building was

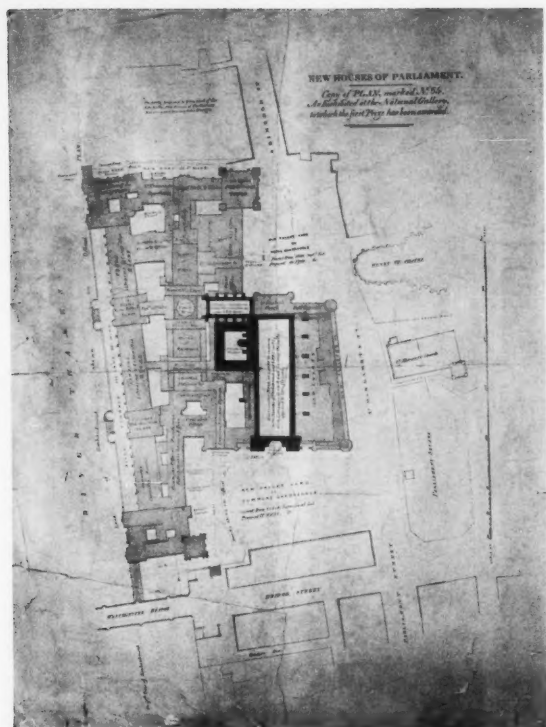


Fig. 3. Plan of First Prize Design, exhibited at the National Gallery, by Charles Barry.

dissected and found in some way deficient. The cry of plagiarism was raised by many, as were charges of over-zealous friendships with the jury. Finally, as a result of the commotion, there was an exhibition of all submissions in the National Gallery (fig. 3), which attracted wide attention in London.

These activities were bound to have repercussions within Parliament, and on 9 February 1836, the new Chancellor of the Exchequer, T. Spring Rice of Cambridge, asked to have the Select Committee reconstituted. This immediately brought Hume to his feet. In a long speech he argued for a change of site, stating that he had attempted to effect this within the original committee, but had lost in a 14-2 vote. He stated, further, that he would have brought that matter before the House when, in July, the report was brought to their attention, but that at the time he had unfortunately been out of his seat.

Hume's crusade for a change in the site is interesting, but not per se an argument for rational, functional design. The important element would, of course, be the justification for such a position; here Hume's reasons seem significant. This is Hansard's record of Hume's speech: "The situation was low and attended with many inconveniences . . . situated as we are in a climate not always the clearest, with an atmosphere dark and murky on many occasions, the Houses of Parliament would require a free and open space. In the neighborhood of that large building, Westminster Abbey, they lost an hour to an



Fig. 4. Southwest view, from the Old Palace Yard, by John C. Buckler (by permission of the Ministry of Works).



Fig. 5. Section, New Houses of Parliament, by David Hamilton (by permission of the Ministry of Works).



Fig. 6. View from the Old Palace Yard, by William Railton (by permission of the Ministry of Works).

hour and a half of daylight. . . . The vicinity of Westminster Hall, too, greatly interfered with the light and air.¹⁷

To these reasons, and others which he had used in previous speeches, Hume now added a new request—one that shows a surprising imagination in matters of both sociological and physical planning, and which seems all the more significant when it is remembered that Hume was a die-hard advocate of retrenchment. The record con-

tinues: 'He [Hume] might be accused of wishing a radical change in this respect, because he would remove the Courts of Law from the present inconvenient situation. [The Courts of Law were at the time an adjunct of the governmental complex in Westminster.] He would propose to build proper Courts in the center of Lincoln's-Inn-Fields in the vicinity of all the lawyers. This would be much more convenient to the public, and the lawyers themselves. . . great public convenience would thereby be obtained.'¹⁸ Finally, in an obvious allusion to the traditionalists, Hume asserted that he knew of no valid objections to his proposal, except two. One was on the ground of old associations connected with the place in which Parliament had so long sat. However, he believed the fire must have destroyed a great deal of those associations. The other dealt with the possible change of the Law Courts, to which he thought they might raise some objection.

Thirty years later, in 1866, the Government was to decide in favor of moving the Law Courts to the area of Lincoln's Inn. Hume might, if in no other way, deserve belated credit for anticipating the needs of London. Unfortunately, the battle he fought in this respect was much too far advanced for his contemporaries, and, in the end, it was consigned to defeat.

The committee, as a consequence of Chancellor Rice's request, was immediately reconvened, and charged specifically with reconsidering the decisions of the Jury Commission. It examined the four commissioners, Charles Hanbury-Tracy, Sir Thomas Liddell, Sir Robert Cust, and George Vivian. Barry and some other specialists were

17. Hansard, *Parliamentary Debates* xxxi (1836), 236.

18. Hansard, *Parliamentary Debates* xxxi (1836), 236.

also questioned. Although Sir John Hobhouse was in the chair, throughout the proceedings Hume was the most persistent examiner. His active mind was quick to find some defects which, functionally at least, tended to diminish the performance of Barry's scheme. He questions Barry:

Q—Is there not a tower of very great height in that plan?

A—There is.

Q—Is a tower of that size and height not calculated rather to impair the light and air required by the adjacent parts of the building?

A—(Hanbury-Tracy) I know of no serious obstruction of light and air from the tower in question. [The tower is on the southwest corner of the complex, casting shade over the building during crucial afternoon hours. On the other hand, it hardly could have diminished the flow of air.] (Cust) In all gothic buildings a tower or spire is generally considered a great element of beauty.¹⁹

Joseph Hume was, of course, a member of the 1835 committee, and is consequently equally responsible for all its decisions. It is obvious, however, that as a layman he was completely unaware of the functional ramifications inherent in the style resolution. But Sir Edward's rejoinder about the necessity for a tower in all Gothic buildings served to focus Hume's attention on the appropriateness—or inappropriateness—of any stylar limitations. In subsequent questioning he probed along similar lines:

Q—You spoke of the style and beauty of the Gothic; have the Commissioners considered the effect of air and weather on all exterior ornaments of that kind?²⁰

And later, still questioning the (jury) commissioners, he makes a tentative but significant assertion:

The Committee who prepared certain instructions for the architects, and who gave a preference to the Gothic and Elizabethan style may have been in error . . . and deeming that durability is one of the elements which ought to guide in the decision of that subject [i.e., architectural form], my question was directed to that purpose, whether as I understand, Gothic architecture in this country suffers more than the Elizabethan [sic] or plainer structures, it ought to be preferred for these public buildings?²¹

Although a year too late, all this questioning served to educate Joseph Hume into the pitfalls of copyism. The question of appropriateness to physical purpose seemed, at least to him, to have been hopelessly subordinated to considerations of sentiment and historical association. At last, on 21 July 1836, he rose in Commons to express his misgivings. In requesting a new committee and a complete re-enactment of the preceding year-and-a-half's activities, he might have been excessive, but some of his reasons still have great pertinence. The official record summarizes his speech:

19. Great Britain, *Report of the Select Committee on Rebuilding the Houses of Parliament, Parliamentary Papers* XXI, 3.

20. Great Britain, *Report of the Select Committee on Rebuilding the Houses of Parliament, Parliamentary Papers* XXI, 4.

21. Great Britain, *Report of the Select Committee on Rebuilding the Houses of Parliament, Parliamentary Papers* XXI, 5.

He disapproved . . . of the restriction as to style of architecture to be adopted. He thought it quite possible that an architect might draw a very pretty picture to gratify the eyes, without attending to the more essential particulars of good accommodation and good ventilation.²²

Throughout the course of these loud and acrimonious discussions, Hume, the leading Utilitarian spokesman in Parliament, advocated the cause of rational, functional architecture. If his activities were tinged with Philistinism, it was of a deliberate nature, grounded in the essential tenets of Benthamite doctrine. In fairness to him it ought to be noted that Hume did care for matters of aesthetics. He was a Fellow of the Royal Society of Arts, and, although the parliamentary activities outlined above hardly indicate it, he did manifest some interest in the appearance of the new Houses. He attempted to save the cloisters around the precincts of Saint Stephen's because of their great beauty, and as the following questions will indicate, he was concerned with some of the aesthetic implications of Barry's great tower.

Q—[directed to Barry] Would you consider your design complete without the great tower?

Q—Will not the increase of length which you have given [50'] throw that tower into Abingdon Street and therefore very much prevent the effect which was expected of the view of the building from the bridge?

Q—Would it not make the general building appear rather diminutive from its [i.e., the tower's] great height?²³

Hume was not a sage; nor was his position founded on any great wealth of architectural knowledge. He was, first and foremost, a politician applying the philosophical dictates of the Utilitarians to the many diverse, practical issues with which a parliamentarian dealt. The group for whom he spoke, gathered around the now aging Jeremy Bentham, had a long and honorable history of strict rational thought. Benthamite doctrine was almost lifeless and inhuman in its application of reason and logic to all spheres of life; his long, itemized Table of Springs is adequate evidence of the mechanical subdivisions in human activity with which he was obsessed. But despite his excesses, Bentham regarded himself as the English heir of French revolutionary rationalism, and the Utilitarians as the device through which a new industrial democracy was to be effected.

To propagate his doctrine Bentham had established a monthly periodical called *The Westminster Review*. Although editorship passed to Col. Perronet Thompson in 1832, it continued to espouse Utilitarian concepts. Two articles, one written in 1834 about a new House of Commons, and the other in 1835 after the fire, reveal the Utilitarian position rather more lucidly than Joseph Hume could.

22. Hansard, *Parliamentary Debates* xxv, 398.

23. Great Britain, *Report of the Select Committee on Rebuilding the Houses of Parliament, Parliamentary Papers* XXI, 22.

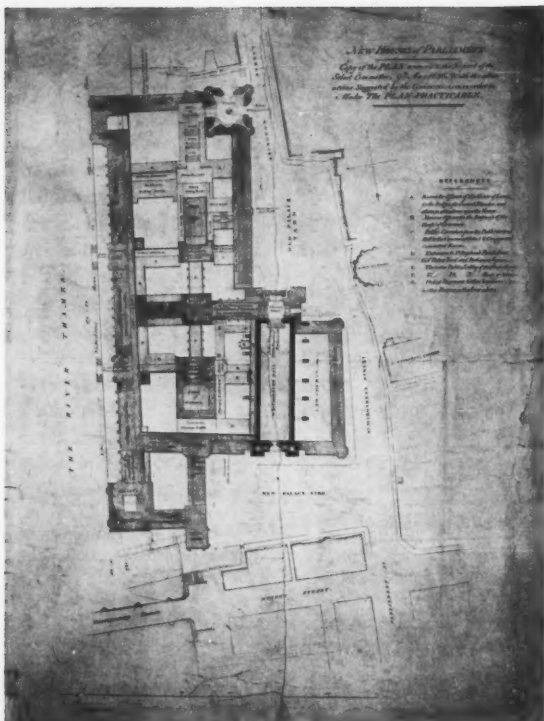


Fig. 7. Plan, New Houses of Parliament, annexed to the Report of the Select Committee, with alterations suggested by the Commission in order to make the plan practicable.

The 1834 article was entitled 'Parliaments of Our Ancestors'. It was an attempt to justify, historically, Hume's motion for a new Commons building. Its author, Henry Cole, a man closely identified with the younger generation of Utilitarians, figures prominently in the High Victorian world of art and crafts. The final paragraph is a biting summary of his position:

Why . . . are fragments of constitutional precedent adopted? Professing all the time the most superstitious and immoderate reverence of ancestral wisdom, on what principal is that wisdom sliced and hewn? Why but because it is not found convenient to have an inconvenient house? Why is it to be excepted in which a demand for convenience, which is at least as old as James I is to be voted nugatory and contrary to good taste?²⁴

A periodical of intellectual breadth such as the *Review* could be expected to provide a pungent and pointed article on the great fire of October 1834. An unsigned essay in the January 1835 issue, probably written by Thompson, stated the Utilitarian cause succinctly. Starting out on a biting note, it asserted, 'The aching tooth has been

removed by a sudden accident.' The Fire has been a 'fortunate calamity' and now we should start afresh. The new building should be 'a powerful machine [a most interesting simile] of nicest force, calculated at once for the most vigorous and gentle operation, as the different occasions shall demand—of wondrous power but composed of a multitude of parts adjusted to a thousand special functions, yet combining for the production of one grand general effect.' And in summing up: 'the building of a new House of Commons [the Utilitarians never acknowledged the right of the Lords] is not then a question of four walls placed here and there, built by this architect or that, in this style or that style; but the question by what machinery shall the legislative functions be best performed.' The article concludes with a list of considerations both of 'external position and circumstance' and of 'internal character and arrangement' which serve to emphasize the material character of the functions envisioned.

The theoretical significance of this can be better assessed by a look at some of the reactions in other lay periodicals and pamphlets of the day. An article entitled the 'British School of Architecture' appeared in *Blackwood's Magazine* setting forth the Tory point of view on the new Houses of Parliament:

Now, then, is the time to adopt a truly princely view of the subject. Erect a work on such a scale of durability as may defy alike the war of elements, the decay of time and the madness of the people.²⁵

The article continues with an attack on the rising bourgeoisie and all its institutions. Recognizing the contribution of those projects 'which are for the purpose of acknowledged utility', it continues:

But it is from the very grandeur of these useful works . . . that we augur worst of the spirit of the age in this particular. . . . We have become a mere race of utilitarians. Nothing is undertaken on a scale worthy either of the age or of posterity, unless it promises a good dividend. . . . The impatience of the democratic, the selfishness of the mercantile spirit, have got possession not only of the national councils, but the public taste.²⁶

The *Foreign Quarterly*, in an article entitled 'The Present School of Architecture in Germany', espoused a form of artistic mysticism whose legacy was to dominate Victorian architecture for many years. Starting from the formal requirements of architecture, it stated,

A piece of architecture in which there are many manifestations of genius is worked out in the same manner as a poem; invention or the ground idea of the subject must come first, and it is to this conception of the fancy that technical skill is afterwards applied, so as to work it up and to render practicable in construction what is originally the mere apprehension of beauty. This is the only true process: by adopting the opposite course we may, indeed, be able to obtain a structure in every respect well suited to its destination, but it can never possess that mysterious charm which genius alone can bestow.²⁷

25. *Blackwood's Magazine* (August 1836), p. 235.

26. *Blackwood's Magazine* (August 1836), p. 235.

27. *Foreign Quarterly* (1834), p. 96.

24. *Westminster Review* XXI (October 1834), 334.

These, then, were the crosscurrents through which the *Westminster Review* cut. Today this can be seen as healthy and reasonable, but at the time the Utilitarian position, in this regard at least, was premature.

In 1837 a pamphlet, by one Archilochus, was issued which in an amusing but incisive way summarized the role of the Utilitarians in the Houses of Parliament debate. It was an article of far-reaching breadth, although not always of great intellectual perception. As a summary, however, it is worthy of extensive quotation.

The same persons [i.e., the Utilitarians] who ventured to think that common sense would determine the proper forms of the new Protestant Churches of the established religion, again presumed to suppose that, now there is a reformed Parliament—now there is so much gas and other light,—now there is so much cheap knowledge . . . that considerations of use rather than beauty, of *plans and sections rather than elevations* [my italics: GHW], would have occupied the minds of those entrusted to lay down the principles upon which the new House of Parliament would be designed.²⁸

And the following concerning the controversy over location:

Consult the genius of the place in all. This precept determined the whole question. It became, therefore, necessary to have a place with

a Genius belonging to it; and it was soon determined that in no place could there be more genius than in that of the present Houses of Parliament. Nevertheless, during the short consideration of this firstling, the stirring spirit of radicalism blistered, Seek a better site—Smell your hare before you dress it—Look at the site of St. James' Palace—At the garden of Buckingham Palace—Confound these points, and get a suitable site out of them. Take a walk to the Penitentiary, and inquire into all the proceedings in the erection of that structure, and particularly as to what was the consequence of building on that site, one similar to that of the present Houses of Parliament. . . . Before you exercise your taste consider what should be the form of the chamber of the assembly of Lords and that of the Commons; how is light to be introduced? From above or from the sides? Where the air is to come from? and how to be introduced? whether from close courts of stagnant air or open spaces, from above or below, or the sides? Settle these things—Have reference to that point to which all voices are to be addressed in determining the form and to that point with respect to such direction of voice and to general hearing: these things ought not to be dependent upon the genius of the place, nor succumb to elevations or any fashion of dressing them—to *design the two rooms proportionally, and with reference to the intended use of them, in length, breadth, and height; to determine their forms by plans and sections, shewing their direct entrance and exits for the respective persons who will attend these rooms and for light and air, exclusively of all matters of taste, is a work requiring much thought, and to which all things should be subordinate.* [my italics: GHW]²⁹

28. R.I.B.A., under Pamphlets on Houses of Parliament, 'What Style, Royal or Baronial?' (London, 1837), p. 15.

29. R.I.B.A., under Pamphlets on Houses of Parliament, 'What Style, Royal or Baronial?' (London, 1837), pp. 19–20.

Thomas Jefferson's Checkerboard Towns

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THOMAS JEFFERSON'S contributions to American architecture are recognized by anyone with even a passing interest in architectural history. His ideas on the planning of the city of Washington, preferring as he did a simple grid layout to L'Enfant's involved baroque scheme, are perhaps less familiar but certainly not undocumented. Virtually unknown, however, are Jefferson's later theories of city planning and their application during and after his presidency to at least two communities. Jefferson as a city planner certainly achieved less renown than in his more familiar roles as statesman, philosopher, or architect. Nevertheless, his ideas of how to plan cities rank with the other products of his astonishingly fertile mind in originality, logic, and interest.

We know from his activities in connection with the early planning of Washington that Jefferson was an undeviating advocate of rectangular layouts. At first, late in 1790, with a site at the mouth of the Anacostia in mind and later, in March of the following year with the site shifted northward, he submitted rough sketch plans of gridiron towns to the President. And in a letter to Washington mentioning that he had supplied L'Enfant with plans of Frankfurt, Karlsruhe, Paris, Orleans, Milan, Amsterdam, and half a dozen other cities, he added the comment that 'they are none of them however comparable to the old Babylon, revived in Philadelphia. . . .' It is significant also that in the mass of correspondence, notes, and memoranda written by Jefferson on the city of Washington, apparently not one comments favorably on the radial plan devised by L'Enfant.

In all this he was consistent with his earlier support of the rectangular system of surveys in the public domain established by the Land Ordinance of 1785 and his scheme for the creation of new states with rectangular boundaries in the Northwest Territory. We see Jefferson, then, a faithful adherent to the grid or checkerboard plan, although he did not allow this strong preference to affect his relationship with L'Enfant. It was, of course, L'Enfant's philosophy of baroque planning that prevailed in the planning of the national capital. Jefferson's direct contribution to city planning in America was yet to be made.

The plan of Washington, like the Chicago Fair a century later, opened a new era in American city development. Almost immediately there appeared imitations of the grand plan, at least in the use of radial street systems generously punctuated with squares and circles. L'Enfant's own plan for Paterson, New Jersey, the drawing of which has unfortunately been destroyed, was perhaps the first of these. Many others followed: Esperanza on the Hudson; Buffalo; Detroit; Perryopolis and Perrysburg, the Pennsylvania and Ohio cities named for the hero of Lake Erie; Indianapolis; Madison; Sandusky; and a dozen or more smaller communities.

In this era of new town development, however, the always popular gridiron plan still predominated. As Francis Baily remarked in 1796 after visiting the new cities springing up all over the country: 'This is a plan of which the Americans are very fond, and I think with reason, as it is by far the best way of laying out a city. All the modern-built towns in America are on this principle.'¹

Jefferson, of course, was fully aware of the widespread use of the grid system. But even as enthusiastic a supporter of rectangular planning as he was, he must have been disturbed by the monotony of most of these new towns and particularly by the lack of open space in their plans. Sometime prior to 1801, when he became President, he began to formulate a system of town planning that was aimed at the shortcomings of the standardized gridirons branded on the American landscape.

Novel and supposedly improved methods of planning were not unknown to Jefferson. He was undoubtedly familiar with the plan of Savannah, which his own system faintly resembled. He had seen the plan of Marietta, the first city in the Northwest Territory, with its common along the river and relatively generous provision for open spaces. From abroad came letters and plans from such people as Sir John Sinclair and Granville Sharp containing information about the towns they had built or proposed. He was familiar at first hand with Philadelphia,

1. Francis Baily, *Journal of a Tour in Unsettled Parts of North America* (London, 1856), p. 105.

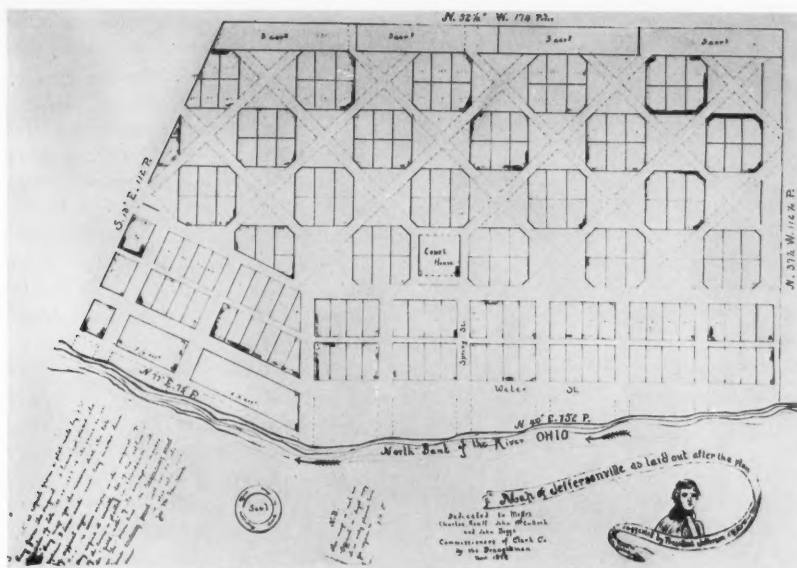


Fig. 1. Original plan of Jeffersonville, Indiana, 1802 (redrawn in 1879).

until 1800 the nation's capital, with its grid plan and five open squares. And, of course, he could remember the features of the cities of Europe that he had visited, particularly their density and congestion which he hoped to see avoided in his own country. From all these sources, but most of all from his own keen mind, came the new pattern for America's cities that was soon to have a trial.

The first reference to Jefferson's new planning system is in a letter written to him by William Henry Harrison, the Governor of Indiana Territory, in 1802. From Vincennes, the territorial capital, Harrison wrote as follows:

When I had the honour to see you in Philadelphia in the Spring of the year 1800 you were pleased to recommend to me a plan for a Town which you supposed would exempt its inhabitants in a great degree from those dreadful pestilences which have become so common in the large Cities of the United States. As the laws of this Territory have given to the Governor the power to designate the seats of Justice for the Counties, and as the choice . . . was fixed upon a spot where there had been no town laid out, I had an opportunity at once of gratifying them—of paying respect to your recommendation, and of conforming to my own inclination—The proprietor of the land having acceded to my proposals a Town has been laid out with each alternate square to remain vacant forever (excepting one Range of squares upon the River)—and I have taken the liberty to call it Jeffersonville. . . .

I have done myself the Honour to enclose a plan of the Town of Jeffersonville and one which shews its situation with regard to Louisville & Clarksville.²

2. Harrison to Jefferson, Vincennes, 6 August 1802, in U. S. Department of State, *The Territorial Papers of the United States* (Washington, 1939), vii, The Territory of Indiana, 1800–1810, 66–67.

The town would be an important one, Harrison assured the President, and as evidence of its desirable location near the falls of the Ohio he mentioned that at the first sale of lots several had sold for as high as \$200. A proposed canal around the rapids would provide the impetus for commercial and industrial development, and Harrison added that he had 'very little doubt of its flourishing'.

The two plans enclosed with this letter have not survived, but a copy of the original town plat exists in the county records (fig. 1), and it was no doubt a similar drawing that the President received.³ The chief feature of the plan, as mentioned in Harrison's letter, is the alternating pattern of open squares and subdivided blocks. This is the basis of the Jeffersonian grid system. His reasons for proposing this pattern are explained in a letter to the Comte de Volney. After describing the outbreaks of yellow fever then plaguing American cities, Jefferson continued:

Such a constitution of atmosphere being requisite to originate this disease as is generated only in low, close, and ill-cleansed parts of a town, I have supposed it practicable to prevent its generation by building our cities on a more open plan. Take, for instance, the chequer board for a plan. Let the black squares only be building squares, and the white ones be left open, in turf and trees. Every square of houses will be surrounded by four open squares, and every house will front an open square. The atmosphere of such a town would be like that of the country, insusceptible of the miasmata which produce yellow fever. I have accordingly proposed that the

3. The assistance of the clerk of Clark County, Indiana, in furnishing a photostat copy of the original plan as redrawn in 1879 is gratefully acknowledged.

enlargements of the city of New Orleans, which must immediately take place, shall be on this plan. But it is only in case of enlargements to be made, or of cities to be built, that this means of prevention can be employed.⁴

In one respect the plan of Jeffersonville departed from the ideas of the President. This was in the curious use of diagonal streets in the open checkerboard portion of the town. The reasons for incorporating the diagonal street pattern in Jefferson's scheme remain a mystery. Perhaps John Gwathmey, who laid out the town, fancied himself something of a L'Enfant and wished to employ the most up-to-date features of civic design, presumably as then embodied in the radial plan for Washington. Certainly the combination of the two plans was unfortunate. The open squares were each cut into four small triangles, the exterior lots had to be clipped at their corners, and the interior lots had no street frontage at all.

The subsequent correspondence of Jefferson and Harrison fails to explain this peculiar circumstance. When the President acknowledged the Governor's letter early in 1803 he commented that he thought 'the plan of the town . . . handsome, & pleasant', but then indicated his uncertainty about the diagonal streets in these words: 'I cannot decide from the drawing you sent me, whether you have laid off streets round the squares . . . or only the diagonal streets therein marked. The former was my idea, and is, I imagine, more convenient.'⁵

Harrison's reply is more confusing than illuminating, for in his answer there is only the following explanation: 'The streets of the town of Jeffersonville are made to pass diagonally through the squares and not parallel with them as I knew to be your intention—but the proprietor was so parsimonious that he would not suffer it to be laid out in that manner. . . .'⁶

The only logical interpretation of this seems to be that Harrison was unable to persuade the land owners to use the more conventional grid street system in addition to and in combination with the diagonals. Such a combined street layout would have been perhaps even more unde-

sirable, since the open squares would have been reduced in size still further, and the street intersections would have been extremely awkward.

Even with the diagonal streets destroying the effectiveness of the open spaces, the plan of Jeffersonville was a remarkable achievement. Whether it would have had the results that Jefferson hoped cannot be known, but its openness and refreshing break with the traditional grid pattern would have provided an atmosphere of distinctive charm. All this, however, can be only conjecture; within fifteen years of the founding of the town its plan was changed, and the town became indistinguishable from hundreds of others.

The proprietors of the town doubtless soon regretted their unusual generosity in dedicating the eighteen open squares for public use. At a time when there had developed a brisk trade in town lots in the vicinity and when Jeffersonville seemed a likely candidate for the chief metropolis at the Ohio falls, these squares lying idle and unimproved became too tempting to resist. A petition was prepared, proper political contacts established, and representations made to the Legislature. In 1816 the necessary legislation was finally secured. In 'An Act to Change the Plan of the Town of Jeffersonville' the legislators recited the reasons for permitting modification of the original plan: 'Great inconvenience arises from the manner in which that part of the town of Jeffersonville lying north of Market street is laid out partly on account of there being no street in said section of said town, and partly because every other square thereof is left vacant. . . .'⁷

The law provided that all the land north of Market Street should be consolidated 'as if the same had never been laid off into town lots', and then replanned as the trustees of the town might direct. In making the new plan the trustees were to provide lots of the same size as those south of Market Street. Existing owners of lots in the area were to receive lots of equal size and value in the replatted portion, or to pay or receive in cash a difference in value. Provision was made for arbitration in the event of dissatisfaction arising from the distribution of land. All lots remaining after the exchange were to be sold at auction, with the proceeds to be used for town purposes. As an early example, possibly the first, of compulsory land pooling for urban redevelopment purposes this law is of more than passing interest. Its effects on the Jeffersonian plan, however, were disastrous.

The law received the Governor's approval on 3 January 1817. By 1 July the new plan had been surveyed and recorded (fig. 2).⁸ With the exception of the courthouse square in the old plan, which with its surrounding streets became the public square, all traces of the original scheme were obliterated. One new feature was added—the design-

4. Jefferson to C. F. C. de Volney, Washington, 8 February 1805, in the *Writings of Thomas Jefferson* (Washington, 1903), xi, 66–67.

5. Jefferson to Harrison, Washington, 27 February 1803, U. S. Department of State, *The Territorial Papers of the United States* (Washington, 1939), vii, The Territory of Indiana, 1800–1810, 89. The same letter contains some additional observations about his plan: 'I do believe it to be the best means of preserving the cities of America from the scourge of the Yellow fever which being peculiar to our country must be derived from some peculiarity in it. That peculiarity I take to be our cloudless skies. In Europe where the sun does not shine more than half the number of days in the year which it does in America, they can build their towns in a solid block with impunity. But here a constant sun produces too great an accumulation of heat to admit that. Ventilation is indispensably necessary. Experience has taught us that in the open air of the country the yellow fever is not only not generated, but ceases to be infectious.'

6. Harrison to Jefferson, Vincennes, 29 October 1803, U. S. Department of State, *The Territorial Papers of the United States* (Washington, 1939), vii, The Territory of Indiana, 1800–1810, 147.

7. *Laws of the State of Indiana* (1816), chapter LIV.

8. Reproduced from a photostat copy of the 1879 redrawing of the revised plat in the Clark County records.

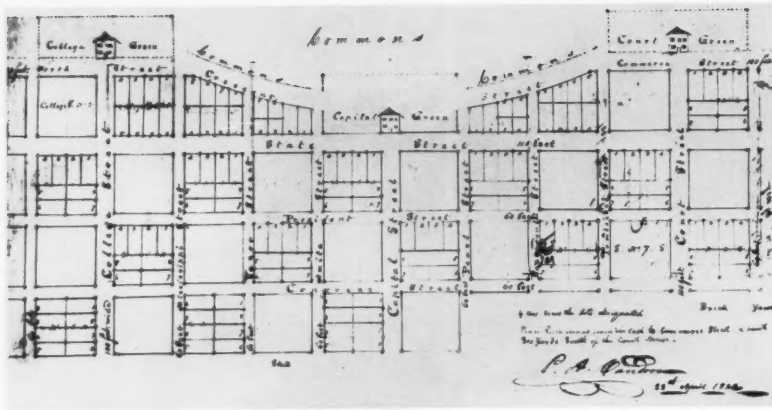


Fig. 3. Plan of Jackson, Mississippi, as laid out in 1821 (courtesy: Mississippi Department of Archives and History).

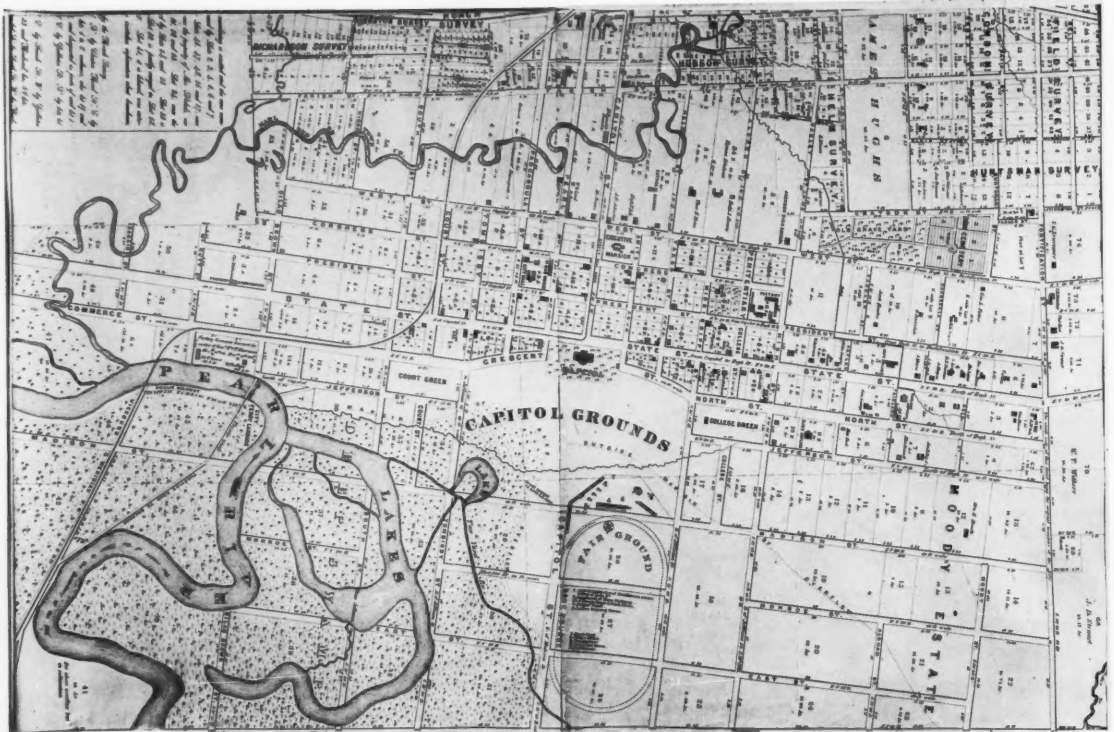


Fig. 4. Plan of Jackson, Mississippi, in 1875 (courtesy: New York Public Library).

ture further to suggest, that the present occasion would be a favorable one for the experiment of a town upon the Checkerboard plan, as suggested by President Jefferson, in a letter to Governor Claiborne, about seventeen years ago. Although there would not be the same necessity for such a plan, in a small interior town, as in a populous maritime city, yet it might be pursued with more propriety in the former, as it respects the value and extent of the ground.¹⁰

In this passage we perhaps have a clue to the reason why the plan was not adopted in New Orleans. It also suggests that Dr. Lattimore, with his natural interest in public health, was the person who was aware of Jefferson's plan and who suggested its adoption for the capital of the new state.

The report then continued with the following additional observations on the merits of the plan:

And even in a small town (to say nothing of the novelty) there would be a comfort, convenience and greater security against fire, as well as a fairer promise of health, all combined, by having every other square unoccupied by anything except the native trees of the forest, or artificial groves.

And, obviously not aware of the previous experiment at Jeffersonville, the commissioners concluded:

As yet, probably, this plan has not been adopted in any country; and if first adopted in this, our state would have the merit of being foremost in an improvement recommended by an eminent American philosopher, an illustrious benefactor of his country, and a friend to mankind.

Eight days later the Legislature authorized Hinds, Lattimore, and Peter Van Dorn to establish the exact boundaries of the capital site and to lay out the town which was to be named in honor of General Andrew Jackson. The original plat of Jackson shows the alternating open square pattern exactly as Jefferson originally proposed (fig. 3). As suggested by the commissioners the land between the town and the river was reserved as a common. As additional features which Jefferson surely would have approved, the planners provided sites for the capitol building, a college, and the courthouse. The three sites were connected by a gentle curve of Crescent Street bordering the common. College, Capital, and Court streets leading to these important sites were platted one hundred feet in width. By varying street widths, reserving large sites for important buildings, and providing a connecting street to link these locations the planners of Jackson improved markedly on the layout of Jeffersonville.

But again, as in the Indiana town, the open squares offered too great a temptation as building sites, and most of them were diverted from their original purpose of providing light, air, and beauty. The official map of Jackson in 1875 reveals that in that year the city hall and the gas

works occupied one of the original open squares (fig. 4). On another was located the penitentiary. Only one of the others had not been divided into lots. The effect of the original pattern has been totally and irretrievably lost.

Perhaps the account of the Jeffersonian checkerboard should end at this point, since so far as is known no other city plan was inspired by his proposals. Yet there was at least one other town that was planned with a system of alternating open squares. Whether its promoters consciously followed the Jefferson model, merely imitated with some variations the earlier plans of Jeffersonville or Jackson, or arrived at the pattern independently can be only a matter of conjecture. Considering all the circumstances it seems most probable that this plan evolved simply as an abstract pattern designed to startle the beholder and attract his attention to the accompanying proposals for speculation in a combined railroad, mining, and land sale enterprise.

The plan was for a town to be known as Missouri City ninety miles south of St. Louis and forty miles west of the Mississippi River in what is now St. Francois County. A map was circulated in 1836 to arouse public interest in the scheme (fig. 5).¹¹ Certainly no more bizarre town plan was ever devised, and it is something of a minor tragedy for the connoisseurs of civic eccentricities that the panic of 1837 forced its promoters to abandon this and sundry other connected enterprises.

The Messrs. Van Doren and Pease, joint proprietors, intended nothing less than the construction of a network of rail lines, exploitation of the mineral resources of Iron Mountain by a mining and smelting company of their creation, establishment of two towns, the other being the manufacturing and river port community of Iron Mountain City on the Mississippi, and the founding of a great university. This latter project explains the use of land proposed for the central ranges of blocks shown in the city plan. Among the benefits of living in Missouri City was to be the privilege of attending the university without payment of tuition. This was to be made possible by the annual contribution to the university endowment of \$75,000 from the profits of the mining operations. In the remaining blocks, except for those in the commercial sections along the railroad, the plan follows the Jeffersonian pattern.

This paper city scheme exhibits all the characteristics of a typical nineteenth-century American town-jobbing promotion. While the proposed allocation of land for open space and institutional purposes was unusually generous, the similarity of its plan to the ideal system put forward by Thomas Jefferson was more than likely mere coincidence. In its other aspects—the carefully delineated asy-

10. 'Report of the Commissioner appointed by the Legislature, for Locating and Establishing a Permanent Site, for the Seat of Government of the State of Mississippi', the complete text of which may be found in Dunbar Rowland, *History of Mississippi* (Chicago, 1925), I, 516-522.

11. Reproduced from a photostat copy in the New York Public Library. Originals may be found in the collections of the American Antiquarian Society and the Missouri Historical Society.

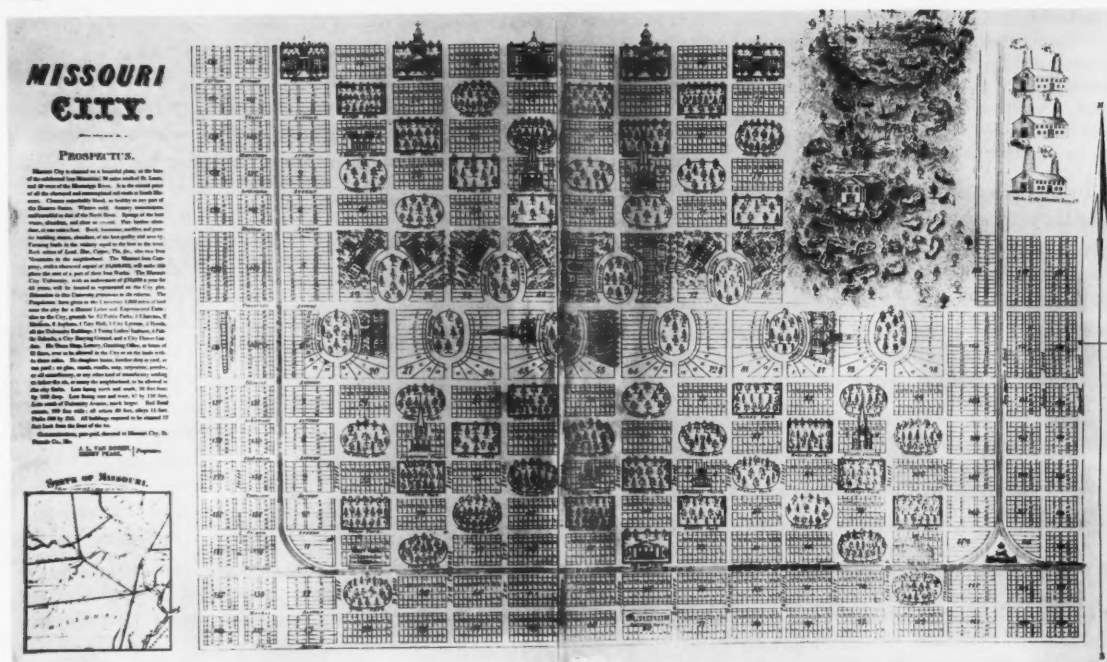


Fig. 5. Plan of Missouri City, 1836.

lums for lunatics, orphans, the deaf and the blind; the city hall; the 'Young Ladies' Institute'; and the several magnificent churches—it displays that curious mixture of appeals to realism with the patently impossible that marked so many of these attempts to separate the gullible frontiersman from his gold.

Jefferson's vision of planned cities incorporating his system of open squares was never realized. In the frenzy

for trading in town sites that characterized so much of the nineteenth century the standardized grid became the playing board of the clever and the unscrupulous land speculator. Always he seemed one move ahead of his unknowing and unwary opponent. It is one of the tragedies of our urban history that the game was not played out under proper rules on the checkerboard of Thomas Jefferson.

A List of Architectural Books Available in America before the Revolution

HELEN PARK Santa Monica, California

ALL THE ARTS in England were enlivened with a resurgence of interest and an influx of new talent under the patronage of Charles II after the long interruption of Puritan rule. This artistic revival included a gradual renewal of architectural classicism introduced to England by Inigo Jones and interrupted by the hiatus in building under the Commonwealth. Spurred in London by the rebuilding which followed the Great Fire of 1666, the movement spread from the court throughout the British Empire by means of architectural handbooks. How-to-do-it books were a phenomenon of the age of reason when measurable proportion was the canon of taste. In building, they supplemented books of plans and elevations and were the instruments for spreading Palladian doctrine to the provinces and colonies.

The first how-to-do-it guide to the practical arts appeared in 1670, Joseph Moxon's *Mechanick Exercises*, a series of pamphlets which included three on house carpentry. They must have made their way to the American colonies, but no identifiable reference has been found. One plate showed a narrow three-story, three-bayed house in elevation. A glossary of terms was included, a useful feature of many later manuals.

Moxon had been preceded in 1663 by Godfrey Richards, who translated the first book of Palladio's *Quattro libri dell'architettura*, and included a supplement on doors and windows by the French architect Pierre Le Muet. Richards' translation went into a second edition in 1668, two years after the Great Fire. The preface notes this as an opportune moment to reissue Palladio's requirements for 'Accommodation, Handsomeness and Lastingness' when 'a new and great City is to be built', and looks forward to 'a second happy restoration, inferiour only to that of his Majesties Person and Government.' Richards' handbook is the earliest in English for which American colonial references have been found.

Such translations or native English instructions continued to appear sporadically until a fresh impetus was provided in 1715 by the Burlington circle in London, a group of tastemakers led by the Earl of Burlington, who returned from Italy in that year to sponsor the first major design book of English Palladianism, Colin Campbell's

Vitruvius Britannicus, a monumental three-volume folio with plates of 'classical' buildings by Jones, Webb, Wren, Vanbrugh, and Campbell himself. Its preface stated the Palladian credo:

With [Palladio] the great manner and exquisite Taste of Building is lost; for the *Italians* can no more now relish the Antique Simplicity, but are entirely employed in capricious Ornaments, which must at last end in the *Gothick*. . . . How affected and licentious are the Works of *Bernini*, and *Fontana*? How wildly extravagant are the Designs of *Boromini*, who has endeavour'd to debauch mankind with his odd and chimerical Beauties, where the Parts are without Proportion, Solids without their true Bearing, Heaps of Materials without Strength, excessive Ornament without Grace, and the whole without Symmetry?

Campbell's plates are equally explicit in illustrating the attenuation of Inigo Jones' vigorous assimilation of Italian Renaissance classicism in the Banqueting Hall at Whitehall into the flattened correctness of Campbell's house for the Duke of Argyll. For the next sixty years design books and handbooks giving plans and directions for constructing Palladian buildings flooded the market, augmented by handbooks with specifications for counter-Palladian embellishments in the Rococo, Chinese, and ancient tastes.

References to eighty-seven of these books have been found in pre-Revolutionary eighteenth-century American records. No identifiable seventeenth-century references were found. About half were manuals, with the detailed instructions for achieving a 'just proportion' in building upon which promulgation of Palladian doctrine depended. Only a few references were found to big prestige books like Campbell's; those with the most references are the ones aimed at the lowest common denominator, or the 'meanest' intelligence in eighteenth-century phraseology. The references were found in the catalogues of institutional libraries, in booksellers' catalogues, in newspaper advertisements, and occasionally in individual inventories. Thirty-four titles appear in institutional lists, of which twenty-one do not appear in advertisements. Thirteen appear uniquely in private inventories. Fifty-three were advertised, but only after 1750.

Except for the William Byrd collection at Westover, only one identifiable reference to an architectural book in



Fig. 1. Title page, Vitruvius, *Architectura*, Amsterdam, 1649 (courtesy: Library Company of Philadelphia).

America before 1730 was found: to John James' translation of Claude Perrault's *On the Five Orders in Architecture* in the Harvard College Library catalogue of 1723. Between 1730 and 1750, references to five titles (and six books) were found, four in the Library Company of Philadelphia and two at Yale.

Geographically, the information covers five major colonial cities, Boston, Newport, New York, Philadelphia, and Charleston. All that has survived of pre-Revolutionary American university library catalogues and five private libraries are included and generally fall within this geographic distribution. Pre-Revolutionary catalogues exist only for Harvard, Yale, and Princeton, although William and Mary, King's College (Columbia), the University of Pennsylvania, Brown, Rutgers, and Dartmouth were established in the Colonial period. Princeton's only colonial catalogue is dated 1760, and no architectural books were listed. Yale had only two in 1741, while Harvard apparently had only one until 1765 when several volumes of Italian architectural theory were added. The private libraries are those of the builder Thomas Dawes of Boston,

the architects Peter Harrison of Newport and William Buckland of Annapolis, James Logan of Philadelphia (secretary to William Penn and chief justice of the Supreme Court of Pennsylvania), and William Byrd, the owner of Westover in Virginia.

Only books which specifically apply to the art of building have been listed. Books of antiquities have been excluded, although they of course underlie the architectural handbooks of the neoclassical movement. They were significantly present at Harvard in 1765 and at the Library Company of Philadelphia in 1770. Potter's *Antiquities of Greece* appears as early as 1755 in the New York catalogue of bookseller Garrett Noel and, along with Kennett's *Antiquities of Rome*, in John Mein's Boston circulating library in 1765. Books of perspective have been included only when they are identifiably oriented toward architecture.

A quantity of unproductive material has been examined. For example, there are no books at all listed in the manuscript inventories of the estates of Gerard Beekman, John Beekman, Richard Stillwell, and Anna Hooglandt, all of whom died in New York in the years 1726–1774, and whose inventories are now in the New York Public Library. Adolph Philipse, who died in 1749, owned 'a parcel of books' but, as so often happened, they were not itemized. Swem's encyclopaedic *Virginia Historical Index* refers to only four architectural books in the period covered by this study. One of these, in the library of Colonel John Carter (died 1690) of Lancaster County, is unidentifiable.¹ A 'guide for builders' listed in the inventory of Colonel Maximilian Boush, who died in Princess Anne County in 1728, may be Keay's *Practical Measurer, or Plain Guide to Gentlemen and Builders* (number 34), but we cannot be sure.² Two others, in the library of Councillor Robert Carter of Nomini Hall, Westmoreland County, *Palladio Londinensis* and *Builder's Treasure of Designs* (probably Batty Langley's), were probably there before 1776, but they have not been included because this study is limited to recorded references before the outbreak of the Revolution.³ A fifth reference, to a 'Vad. Mecum' in the library of Colonel John Waller, who died in Spotsylvania County in 1755, may of course be to Salmon's *London and Country Builder's Vade Mecum*, but again we do not know.⁴ It seems clear, how-

1. *William and Mary Quarterly*, series 1, VIII, no. 1 (1899), 18. A great many inventories have been printed in this quarterly, in the *Virginia Magazine of History and Biography*, Tyler's *Quarterly*, etc., indexed in Earl Gregg Swem, *Virginia Historical Index*.

2. *William and Mary Quarterly*, series 1, VIII, no. 2, 77–79.

3. *William and Mary Quarterly*, series 1, X, no. 3, 232–241. The inventory of Carter's library appeared in the papers of Philip Vickers Fithian, a member of the class of 1772 at Princeton College, who thereafter was tutor of Carter's children and who died in 1776. Waterman has related details of Nomini Hall to Salmon's *Palladio Londinensis*, probably in the changes which were made ca. 1770, in *Mansions of Virginia* (Chapel Hill, 1946), pp. 143–144.

4. *William and Mary Quarterly*, series 1, VIII, no. 2, 78.

ever, that quite early there was a scattering of architectural books owned by the educated. A copy of Vitruvius, in the Winthrop library presented to the Massachusetts Historical Society in 1812, is almost sure to be pre-Revolutionary, according to Dr. Harold Jantz of Johns Hopkins University, who has been making a close study of the Winthrop collection.⁵

Boston and Philadelphia are the most thoroughly studied areas. Philadelphia information is taken from an unpublished thesis written by Charles Hummel at the University of Delaware in 1957 on the influence of English design books on Philadelphia furniture in the period 1760-1780. Hummel was the first to list systematically the available sources and use them in a study of local decorative influences. In architectural history, endeavors have been made to work from an existing monument to possible sources, frequently with successful identification but without a body of source information on which to rely. Hummel's study produced a list of fifty-one architectural books in Philadelphia during the peak economic period covered by this study. Titles of architectural books in pre-Revolutionary Boston, including the Harvard College Library, totaled fifty.

For both Boston and Philadelphia there are booksellers' catalogues, newspaper records, and information on institutional and private collections. The Boston records, including Harvard, provide an accurate picture of the kind and extent of information available. Records exist before 1750, but only one reference to an architectural book was found in that period (Perrault at Harvard in 1723). Although Dow's newspaper coverage begins in 1704 with Boston's first newspaper, the first advertisement for an architectural book is dated 1754. Thereafter, thirty-six titles occur in newspaper and booksellers' catalogue references. The library of Thomas Dawes, a Boston builder born in 1731, also probably was collected around mid-century, since he could not have been active before the 1750s.

A comparable continuity of information exists in Philadelphia, beginning with the records of Franklin's Library Company, founded in 1731. In Newport there are the 1750 and 1764 catalogues of the Redwood Library, and Peter Harrison's own phenomenal collection of architectural books from the inventory of his estate in 1775. New York is moderately well covered with three booksellers' catalogues and two catalogues for the New York Society Library, a membership library and the only public or semipublic collection in eighteenth-century New York for which records remain. In Charleston there is only the 1770 catalogue of the Charleston Library Society, organized in 1748.

The most substantial contribution to our knowledge of architectural books in the American colonies before 1750

5. From information in a letter from Dr. Jantz, dated 21 April 1960.

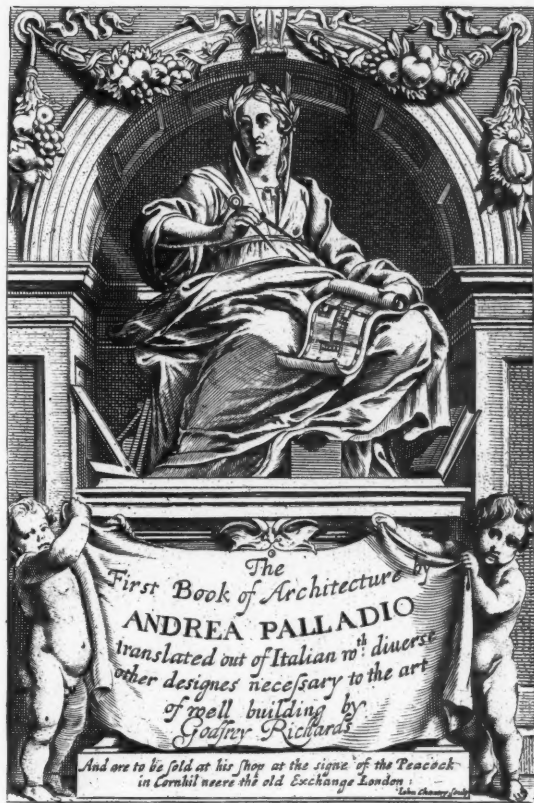


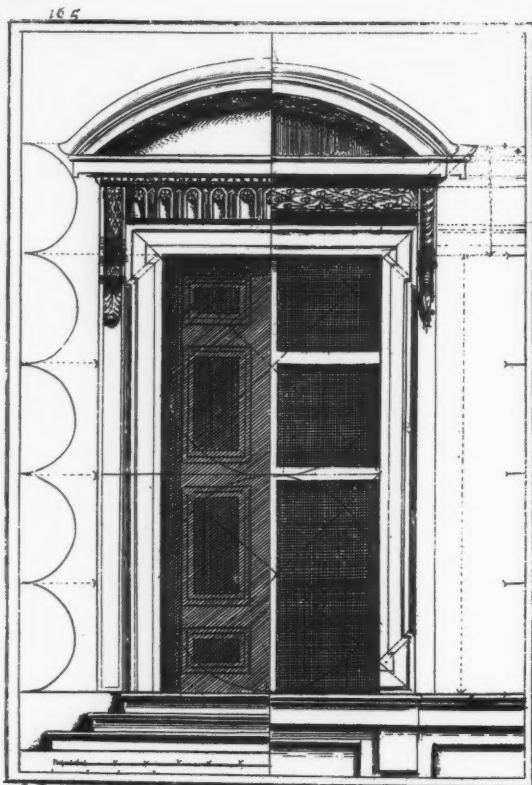
Fig. 2. Title page, Richards' translation of Palladio, *The First Book of Architecture*, London, 1663 (courtesy: Boston Athenaeum).

is the library of William Byrd, who built his house Westover on the James River about 1730 and who died in 1744. A catalogue of his library was made probably about 1751, according to Edwin Wolf, who compares the library only to those collected by James Logan and Cotton Mather.⁶ Byrd owned ten architectural books, a representative collection all published before 1730, three of them before 1700. Logan at his death in 1751 owned four architectural books, the latest published in 1703. Mather, who died in 1728, mentioned no architectural books in his prideful references to his large library.⁷

In summary, all booksellers' references, in newspapers and sales catalogues, and all except four references in institutional collections, occur after 1750. References in-

6. Edwin Wolf II, 'The Dispersal of the Library of William Byrd of Westover', *Proceedings of the American Antiquarian Society* LXVIII (1959), 19-106.

7. However, only about 500 of his estimated 3000-4000 books can be identified in this way. Thomas Goddard Wright, *Literary Culture in Early New England, 1620-1730* (New Haven, 1920), pp. 242-253.



A Door and window according to the Tuscan Order

Fig. 3. A door and window in the Tuscan order by Le Muet, in the appendix to Richards' translation of Palladio (courtesy: Boston Athenaeum).

crease markedly about 1760, as noted also by Hummel, due partly to better information (only one bookseller's catalogue with architectural listings occurs before 1760 and all relevant institutional catalogues, except Yale's, were revised after 1760) and partly to increased demand. The libraries of Peter Harrison and William Buckland belong very near the end of the Colonial period, although Harrison probably began to collect his architectural books in the 1740s and Buckland certainly by 1755 owned some books. Thomas Dawes actually lived until 1809, but his library represents work dating from mid-century.

The time boundaries of the books in English span a decade beyond a century, from Godfrey Richards' translation of Palladio's first book in 1663 to volume one of Robert and James Adam's *Works in Architecture* of 1773, the beginning of a new phase in the classical revival. Only thirteen titles among the references were published before 1715. Of these, six were in Italian, one appeared both in French and English translations, and the rest were in English. Five of the English books were published before 1700. Two of these were translations from French and two others were selections from Richards' *Palladio* with Le

Muet's supplement and William Leyburn's *Scamozzi* with an added description by John James of a method for constructing and using a 'joynt rule'. Only two titles occur between 1700 and 1714, both in English, although Byrd's *Traité d'Architecture* by Sebastien LeClerc was probably the French edition of 1714, which would raise the number to three for this fifteen-year period. The next decade, 1715–1725, brought eight titles which appeared in the American colonies, including major English design books by Campbell and James Leoni.

The most intense publication occurred between 1731 and 1735, when fourteen titles were published, only one less than the total for the whole decade of the fifties. They were produced by such familiar Palladian authors as James Gibbs, Francis Price, William Salmon, Batty Langley, and Isaac Ware. The preceding five years produced nine titles in the American references, more than in any other five-year period except that of 1731–1735, making a grand total of twenty-three for the decade. These include such American rarities as William Kent's *Designs of Inigo Jones* published in 1727, and the combined production of Kent, Isaac Ware, and Thomas Ripley, *The Designs of Houghton in Norfolk* of 1735, both of which represented the most advanced English design and were apparently owned only by Peter Harrison in the American colonies.

But the proliferation of architectural books depended on the demand for technical knowledge. The intense publication years of 1731–1735 produced the two most frequently used builders' manuals, long on geometry, arithmetic, and structural members, but with no plans and few designs for architectural embellishment. These two manuals, according to the number of references found in this study, appeared in 1733 and 1734, Francis Price's *The British Carpenter* and William Salmon's *Palladio Londinensis*. Price offered extremely basic plates in a handy small folio, showing 'the most approved methods of connecting timber together, for most of the various uses in building, with the rules necessary to be observed therein.' To these he added plates on the construction of domes and staircases, rules for squaring timbers for 'twisted' stair rails, a table for timber scantlings, and general recommendations on strength in construction and spacing of joists. He included a supplement with Palladio's orders, details of entablatures, elliptical and angular pediments, and their 'application to use' in doors, windows, and arches. His final contribution was a section on the construction of a trammel, a device for drawing an ellipse which was still in use in the nineteenth century, according to Colvin. He claimed that his plates were so clear that no other information was required, and he was certainly a valuable guide to country workmen trying to follow city fashions.

Salmon's *Palladio Londinensis* was designed to provide the builder with everything he needed to build and decorate a house according to a plan provided in some other source. The third edition was organized in three parts

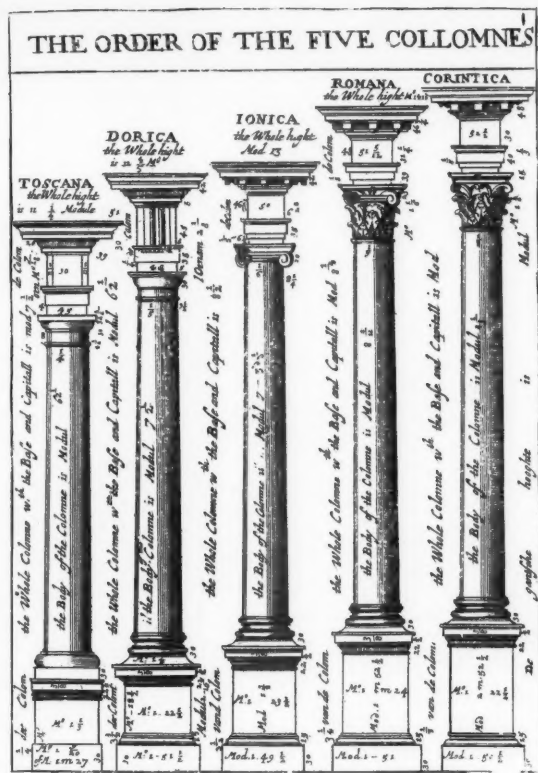


Fig. 4. The orders, from Leyburn's translation of Scamozzi, *The Mirror of Architecture*, 1669 (courtesy: Boston Athenaeum).

with fifty-two copper plates, and is again a convenient size for the workman on the job. It includes sections on geometric figures, the orders, staircases, chimneypieces, and roofs. Salmon attacked a basic Palladian problem in trying to teach 'a young architect' how to determine 'a just proportion'. He gave directions for finding the module arithmetically, geometrically, and 'inspectionally' by a table. He complained about the Italian and French theorists who did not include these vital matters. He thought Halpenny and Langley the best of his predecessors in this respect, but preferred his own methods because they did away with Langley's troublesome 'aliquot' parts besides providing for more variations in use of pilasters and columns. The organization and presentation of the material in this book throw considerable light on the men who used such manuals. The difficulties involved for a craftsman unskilled in mathematics in achieving a 'just proportion' show up in the replacement of fractions with aliquot parts, in turn replaced by a table. Salmon, however, offered methods for those who want to work out the problem in order to follow any scheme. Although a more comprehensive volume than Price's, Salmon's is still very basic. Only sixteen

plates in the third edition are designs for doors, windows, and chimneypieces. The rest are structural with a section, as in Price, on the construction of various kinds of roofs.

Salmon's book was without doubt aimed at the home market, even the London market, since it includes London's brick fire wall regulations of 1661 for contiguous buildings. It seems unlikely, however, that these extremely useful manuals were produced without the colonial market in mind. There was a consciousness of the need to establish English equality in the artistic sphere now that she was politically and economically dominant, a declared *raison d'être* in Abraham Swan's introduction to his *Collection of Designs* of 1757 and in Batty Langley's exhortation to English craftsmen in his pocket-sized *Golden Rule for Drawing and Working the Five Orders in Architecture* of 1756.

Langley exploited the receptivity of British craftsmen in a series of books which began to appear in the twenties. They culminated in the influential *The City and Country Builder's and Workmen's Treasury of Designs* of 1740, the third most often consulted book according to this study. In the *Treasury* Langley incorporated far more designs than his competitors, 'upwards of four hundred grand designs . . . on eighty-six copper plates', which he tended to re-use in his later publications. The *Treasury* is largely a collection of designs for important architectural decorative elements (its subtitle is: or the Art of Drawing or Working the Ornamental Parts of Architecture), with only fourteen plates devoted to problems of construction (all of them roofs). There is no section on geometry, but there are directions for proportioning the orders. Langley had, after all, responded to these other requirements earlier and now recognized the usefulness of a collection of designs for embellishing modest houses. In the introduction to the *Treasury*, he explained his purpose, and the function of the workman's handbook:

As the greatest Part of the Architecture of Andrea Palladio, published by Leoni, Ware, etc. in large Folio's, consists chiefly of Designs of Palaces, Bridges, and Temples, which to Workmen are of Little Use, and as those Books are of large Prices, beyond the Reach of many Workmen, and too large for Use at work; I have therefore, for the common Good, extracted from the works of that great Master, all that is useful to Workmen.

William and John Halpenny exploited the same market over nearly as long a period, and in 1750 began to issue a series of pamphlets covering the new vogue for the Gothic and Chinese. Also, like Robert Morris and Thomas Lightoler, they correctly assessed middle-class requirements and provided plans and brass-tack costs for modest but 'elegant' houses, clearly an important service to colonial builders.

By 1755 the market had been glutted with so many popular interpretations of the master Palladio, and so many people had reacted to arbitrary Palladian discipline with Chinese, Gothic, and ancient designs for subsidiary

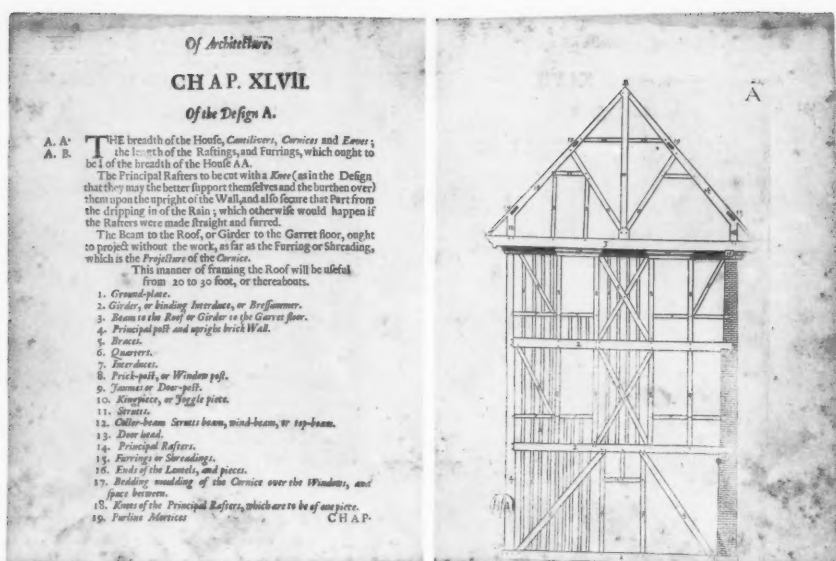


Fig. 5. House framing, Richards' translation of Palladio (courtesy: Boston Athenaeum).

buildings that Robert Sayer, an important London printer and bookseller, advertised a treatise with the title:

Country Five Barr'd Gates, Stiles and Wickets, elegant Pig-styes, beautiful Henhouses, and delightful Cow-cribs, superb Cart-houses, magnificent Barn Doors, variegated Barn Racks, and admirable Sheep-Folds; according to the Turkish and Persian manner; . . . To which is added, some Designs of Fly-Traps, Bee Palaces, and Emmet Houses, in the Muscovite and Arabian Architecture; all adapted to the Latitude and Genius of England. The whole entirely new, and inimitably designed in Two Parts, on Forty Pewter Plates, under the immediate Inspection of Don Gulielmus De Demi Je ne scai Quoi, chief Architect to the Grand Signior.⁸

Of the fifty-three titles sold by booksellers (sixty-one per cent of the total American references), the earliest references are to books published during the saturated five-year period of 1731–1735, to Salmon's *Palladio Londinensis* in 1751, and to Price's *British Carpenter* in 1754 in Philadelphia, although the *British Carpenter* was in the Library Company in 1739, a significant comment on its usefulness. The earliest Boston reference is in 1754 to Leyburn's translation of Scamozzi, the only seventeenth-century book to appear in the booksellers' references. Leyburn's inclusion of John Brown's *Description and Use of a Joynt Rule* is comparable to Price's directions for constructing a trammel and must have made Leyburn's one of the most important of the early English publications, comparable to Moxon's *Mechanick Exercises*, which does not appear on this list at all. The Price and Salmon manuals, apparently the most often used in the American

colonies, do not occur in Boston advertisements until 1761, a significant delay.

An abrupt rise in popularity is discernible in the books published after 1730. Of the fourteen books which appear in the crowded 1731–1735 period, twelve occur among the booksellers' references. Eight were available in Philadelphia, six in Boston, and three in New York. The fact that New York's expansion came two decades later than Philadelphia's must account to some extent for the scarcity of references in New York generally (a total of twenty-seven for the booksellers, and twenty-nine altogether). It may be that the pattern established by George Mason and William Buckland at Gunston Hall is characteristic of river plantation building,⁹ and that the Van Rensselaers and Livingstones hired architects with their own libraries of handbooks for which few records remain. Three architects advertised in the *New York Mercury* in the years 1758, 1765, and 1768, while three house carpenters in the years 1768–1771 advertised that they would undertake designs for buildings.¹⁰ Architects advertised in Philadelphia, too, and in Annapolis and Charleston.¹¹ Furthermore, it is interesting to note that in Williamsburg, where there is little specific information on handbooks, an architect advertised in the *Virginia Gazette* in 1777 that he had 'an elegant Assort-

9. See Rosamond R. Beirne and John H. Scarff, *William Buckland, 1733–1774* (Baltimore, 1958).

10. *The Arts and Crafts in New York, 1726–1776, Advertisements and News Items from New York City Newspapers* (New York, 1938).

11. *The Arts and Crafts in Philadelphia, Maryland and South Carolina, 1721–1785*, gleanings from newspapers collected by Alfred Coxie Prime (The Walpole Society, 1929).

8. Noted by H. M. Colvin in *A Biographical Dictionary of English Architects, 1660–1840* (London, 1954), p. 394.

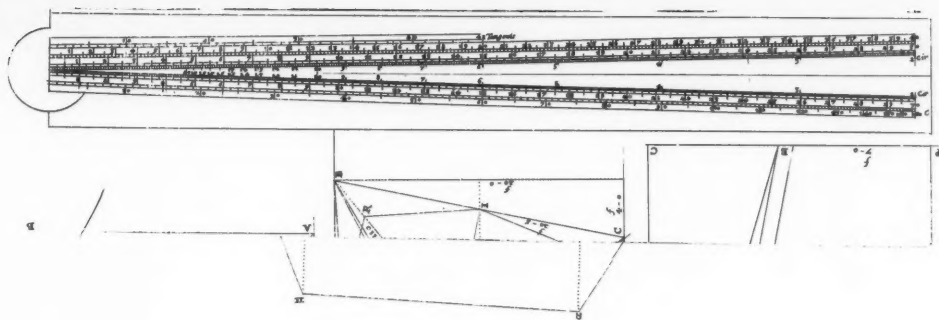


Fig. 6. John Brown's 'Joynt-Rule', from Leyburn's translation of Scamozzi, *The Mirror of Architecture* (courtesy: Boston Athenaeum).

ment of Tools, and Books of Architect, which I imported from London and Liverpool'.¹²

The significant difference in availability, however, is between Philadelphia and Boston, where information is good. Thirty-six books were advertised for sale in Boston, and thirty-nine in Philadelphia. Sixteen of the books advertised in Philadelphia were apparently not available in Boston. Half of those were published in the fifties, the decade of attempts to enliven the severity of Burlington-Campbell Palladianism. Two of this number must have been in Boston (Gibbs' *Rules for Drawing the Several Parts of Architecture*, 1732, and Swan's *Designs in Carpentry*, 1759), although apparently not advertised, because they appear in the Dawes library, in general an extremely conservative collection in which more than half of the books were originally published before mid-century. Generally speaking, the books which represent the most advanced decorative style appear later, though often not at all in the Boston references. Of the books of the fifties only four out of fourteen occur among the Boston references. These do not include Abraham Swan's important *Collection of Designs*, 1757, or the Halfpenny pamphlets in the new styles. Langley, on the other hand, remains a constant in both Philadelphia and Boston, and he and Hoppus revised their earlier handbooks to include new motifs. Boston had access to fashionable designs also in Morris's *Architecture Improved* and Swan's *British Architect* of the preceding decade, but apparently used them sparingly.

The Harvard Library did not supplement in any practical way the books available in the book stalls. Eight of its ten architectural books were sixteenth- and seventeenth-century Italian theory, a collection which underlines the very conservative application of counter-Palladian elements in Boston architecture.

12. Lester J. Cappon and Stella F. Duff, *Virginia Gazette Index, 1736-1780* (Williamsburg, 1950), and accompanying microfilm.

Demand was maintained for virtually all the books published from the 1731 surge. All books published in the forties which appear in the American references were available from booksellers. In the fifties, only Halfpenny's *Designs for Chinese Temples* and Chambers' *Civil Architecture* fail to occur among these references. The failure to

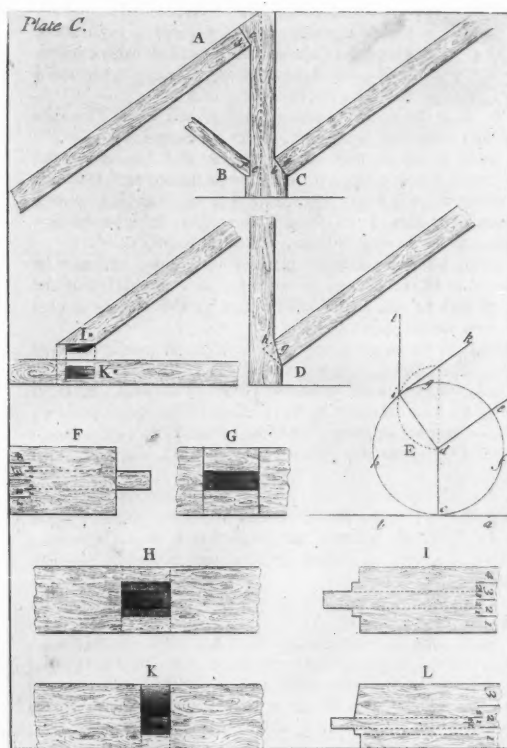
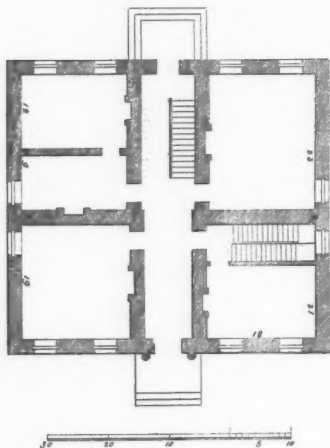


Fig. 7. Framing timbers, from Price, *The British Carpenter*, 1753 (courtesy: Yale University Library).



A Swan Arch.^o Pub.^d accord.^d to Act of Parl.^t

J. Addison Sculp

Fig. 8. Elevation and plan, from A. Swan, *A Collection of Designs in Architecture*, 1757 (courtesy: Avery Library).

find a reference to the Halfpenny pamphlet probably represents a flaw in the survey system, while the Chambers work is the kind of publication which shopkeepers did not find readily salable. This was also true of the earlier monumental folio publications. Campbell, Leoni, and Kent were not popular, but they were influential. They are found usually in a progressive institutional library like that of the Library Company of Philadelphia, or in the private collections of a gentleman scholar like Byrd or an architect like Harrison.

By 1760, the gap between publication date and arrival in the colonies was closing. Ten of the twelve books published in the fifties and available in Philadelphia were there in 1760. In two instances Boston was only a year behind, and William Pain's *Builder's Companion*, published in 1758, appears in both Philadelphia and Boston

advertisements in 1760. The Pain instance is especially significant, since the book had considerable influence in New England in the early post-Revolutionary years. Again, in this late period, two out of three of John Crunden's handbooks were available in Boston and not in Philadelphia, which suggests the importance of Crunden too in Boston in the period preceding the Adamesque.

But exploitation of the Rococo was definitely left to the new merchant aristocracy to the south. Its enthusiastic reception in the sixties in Philadelphia and Maryland coincides with economic expansion which made Philadelphia the third city in the Empire at the outbreak of the Revolution.

William Buckland, architect of Gunston Hall, worked in Annapolis from 1770 to 1774, at the height of the demand for internal embellishment. He owned fourteen architectural books.¹³ Among them were Swan's *British Architect* of 1745, which brought the Rococo to the colonies, his *Collection of Designs in Architecture* and the *Designs in Carpentry*, both published in the fifties, Lightoller's *Gentleman and Farmer's Architect*, which supplemented Swan's big *Collection of Designs* with more plans for modest houses (Swan notes that he intended Book II to be a collection of designs for more elaborate houses, but he changed his mind because designs for smaller houses were more useful), Chippendale, and Langley's *Gothic Architecture*.

The combination of merchant prince and architect occurred in New England. The influence of Peter Harrison of Newport must have been enormous. He owned a large and representative collection of twenty-seven architectural books ranging in date from 1664 to 1766, from John Evelyn's translation of Fréart de Chambray's *Parallel of the Ancient Architecture with the Modern* to Overton's *Original Designs of Temples and Other Ornamental Buildings*. He seems to have collected his architectural library systematically from the whole period of English publication and some of the most important books were apparently unique in the American colonies. He bought nine in the dense publication decade of 1726-1735, and seven more volumes were added during the flurry of the fifties. He acquired only four of those published in the forties, but significantly these included Swan's *British Architect*, which introduced the Rococo to the colonies and Halfpenny's *New and Complete System of Architecture*, which provided plans specifically for small 'elegant' houses admirably suited to the colonial market. To compare the Harrison collection with that of the only other New England architect or builder whom we know, one third of Harrison's collection dates from 1750, as do four of the eleven identifiable books

13. These are listed in the inventory of Buckland's estate in the Maryland archives, and were published last year by Beirne and Scarff in *William Buckland*.

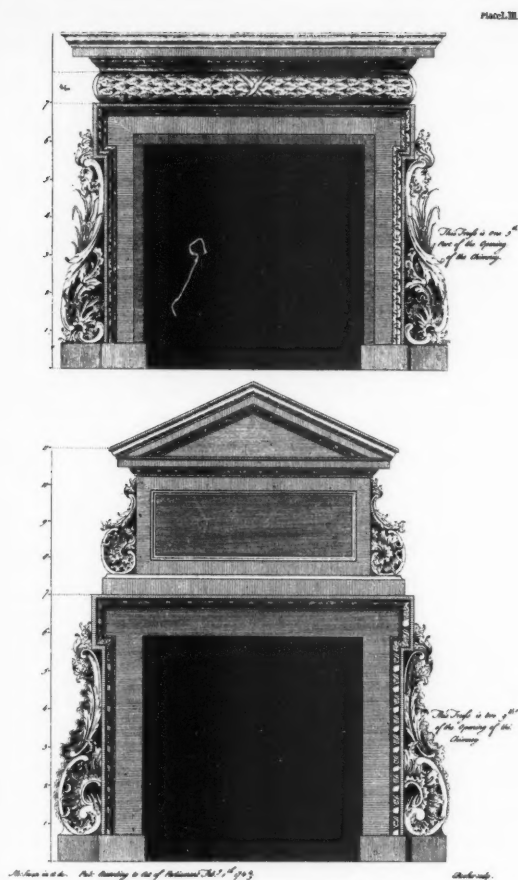


Fig. 9. Designs for fireplaces, from A. Swan, *The British Architect*, 1745 (courtesy: Avery Library).

owned by Thomas Dawes.¹⁴ Dawes' collection was generally very conservative. He did not own the significant innovating books of the forties, and while two of his later books were lesser Swan publications, the others were Riou's *Architecture of Stone Bridges* and Pain's conservative *Builder's Companion*. Two of Dawes' very basic books, however, were in late editions, Hoppus's *Repository* in the 1760 edition and Langley's *Treasury* in the third edition of 1756. This means of course that even without the volumes bringing the Rococo and Chinese, he had some choice of decorative detail in the new modes since Langley

14. Twelve titles are listed from the Dawes estate in the 1809 acquisition book of the Boston Athenaeum. The twelfth, listed as 'Jones' Designs', can no longer be traced in the Athenaeum collection. It conceivably was Kent's *Designs of Inigo Jones*. If it were, it would be a significant addition to the Boston list.

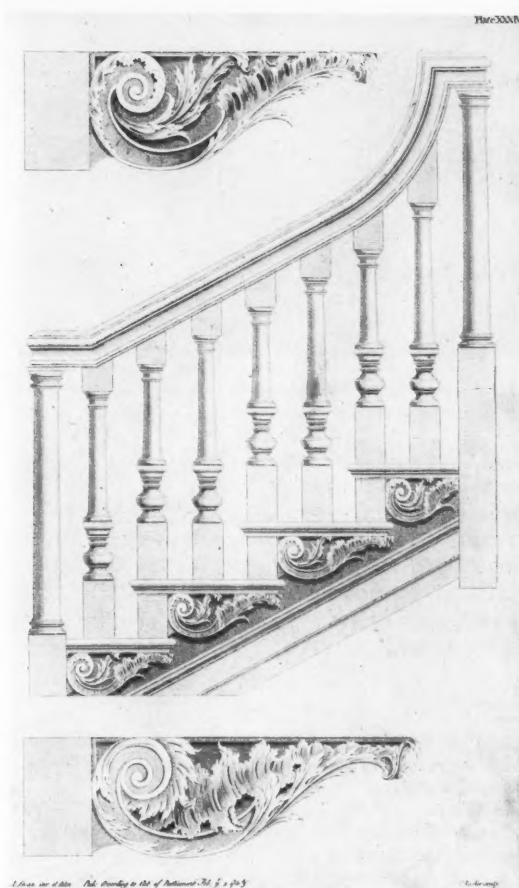


Fig. 10. A staircase, from A. Swan, *The British Architect*, 1745 (courtesy: Avery Library).

and Hoppus quickly adapted their old standards to the new taste. However, he never owned any of the major new books of design.

To an important degree, Harrison's architectural library must represent all the main elements in the English movement after the Restoration. Significantly, his earliest books are French, Fréart's *Parallel of the Ancient Architecture with the Modern* and LeClerc's *Treatise of Architecture*, which Byrd also owned. Although Holland was the earliest channel taken by the Italian Renaissance in reaching England, by 1660 the hiatus in building caused by the Puritan revolution, political and economic difficulties with the Netherlands, and the cultural and political dominance of France in seventeenth-century Europe naturally led to French references in beginning Palladianism in colonial America. Nothing in the American references antedates the Restoration except Harvard's Italian theory, all added after the library fire of 1764, and James

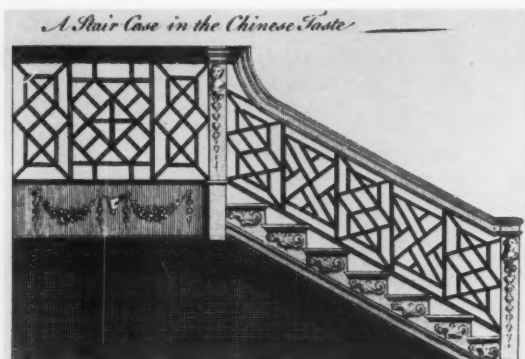


Fig. 11. A staircase, from Halfpenny, *New Designs for Chinese Temples*, 1750 (courtesy: Avery Library).

Logan's 1649 edition of Vitruvius published in Amsterdam, the only direct link to the Netherlands. The earliest reference at Harvard, to Perrault in 1723, is French. The aristocratic confidence of the French Academy in its ability to codify the production of art inevitably gave strength to the essentially middle-class, rational application of geometric formulas to popular building in England and her colonies.

Sources

Professor John Coolidge, Director of the Fogg Museum at Harvard, has been the source of countless valuable suggestions, and indeed suggested this study.

Unless otherwise indicated, titles and edition dates of English architectural books have been checked in H. M. Colvin, *A Biographical Dictionary of English Architects, 1660-1840* (London, 1954). French and Italian books have been checked in the *Catalog of the Royal Institute of British Architects* (1937). Edition dates for Italian books are those of the actual volumes as recorded. Moxon, Neve, and Ralph were also checked in the R.I.B.A. catalogue.

BOSTON

A Catalogue of New and Old Books Which Will be Exhibited by Auction, by Robert Bell, Bookseller and Auctioneer on July 4, 1770 . . . at Royal Exchange Tavern, King Street, Boston. Photostat of a broadside in the Bowdoin Papers, vol. XII, MHS.

A Catalogue of Books Imported & to be Sold by Henry Knox, at the London Book-Store, a little Southward of the Towne-House, in Cornhill (Boston, 1773). Boston Public Library.

A Catalogue of Mein's Circulating Library Consisting of about Twelve Hundred Volumes, in most Branches of Polite Literature, Arts and Sciences (Boston), facsim. from MHS Photostat Americana, 2nd series, 1936, in the Boston Public Library, 1765.

Dow, George Francis, *The Arts and Crafts in New England, 1704-1775* (Topsfield, Mass.: The Wayside Press, 1927).

Library of Thomas Dawes, from a list of his books in the Boston Athenaeum Accession Book, 1809, when the books were given to the Athenaeum. Most of these have been located and identified in the Athenaeum collection by Dr. Abbott Cummings, Asst. Director of the Society for the Preservation of New England Antiquities.

CHARLESTON

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The Arts and Crafts in Philadelphia, Maryland and South Carolina, 1721-1785, gleanings from newspapers collected by Alfred Coxé Prime (The Walpole Society, 1929).

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Bridenbaugh, Carl, *Peter Harrison, First American Architect* (Durham, N. C., 1949).

Peter Harrison inventory, in Connecticut State Archives, Hartford.

REDWOOD LIBRARY:

Catalogue of 1750 (relevant volumes extracted by the librarian, Donald T. Gibbs).

Catalogue of 1764, published in Fiske Kimball, *Thomas Jefferson, Architect* (Boston, 1916), p. 34n.

NEW YORK

A Catalogue of Books in History, Divinity, Law, Arts and Sciences, and the Several Parts of Polite Literature; to be Sold by Garrat Noel, Bookseller in Dock-Street (New York, 1755), Boston Public Library.

Hummel, Charles, *Influence of English Design Books on Philadelphia Cabinet Makers, 1760-1780*, Part II, Section 2 (University of Delaware Master's Thesis, 1952), which includes a study of two New York booksellers' catalogues: James Rivington, *A Catalogue of Books, Lately Imported and Sold by James Rivington* . . . , also at His Store next door to Messrs. Taylor and Cox, in Front-Street, Philadelphia (New York, 1760); and James Rivington, and Brown, *A Catalogue of Books, Sold by Rivington and Brown* . . . (New York, 1762).

New York Society Library, *A Catalogue of the Books Belonging to the New York Society Library* (1754). Photostat of original.

A Catalogue of Books . . . (New York, 1773). Houghton Library, Harvard University.

The Arts and Crafts in New York 1726-1776, Advertisements and News Items from New York City Newspapers (New York). Printed for the New York Historical Society, 1938.

PHILADELPHIA

Hummel, loc. cit. Includes information from the minute books of the Library Company, letter books and broadsides for Philadelphia booksellers David Hall and William Strahan, as well as Rivington and Brown, files of the *Pennsylvania Gazette*, the *Pennsylvania Journal and Weekly Advertiser*, and the *New York Mercury*.

Edwin Wolf, II, librarian of the Library Company, looked at the Philadelphia references in detail, corrected and clarified many points, and in several instances was able to move a date of record back by a number of years.

Catalog of the Library Company (1741), facsim. published by the LCP in 1956.

Catalog of the Library Company (1770), in Kimball, *Jefferson*, pp. 34-35n.

The Arts and Crafts in Philadelphia, Maryland and South Carolina, 1721-1785, gleanings from newspapers collected by Alfred Coxé Prime (The Walpole Society, 1929).

UNIVERSITIES

HARVARD COLLEGE:

Catalogus Librorum Bibliothecae Collegii Harvardini . . . , compiled by Joshua Lee (Boston, 1723). Houghton Library, Harvard.

A Supplement . . . (1725). Houghton Library, Harvard.

A Supplement . . . (1735). Houghton Library, Harvard.

An Alphabetical List of the Books Belonging to the Library of Harvard College, compiled by Andrew Eliot MS (1765), in the Harvard Archives.

An Alphabetical List of the Books Belonging to the Library of Harvard College, compiled by Amos Adams MS (1771), Harvard Archives.

YALE COLLEGE:

A Catalogue of the Library of Yale College in New Haven (New London, 1743). Facsim. published by Yale to commemorate opening of Sterling Library.

OTHER

Library of William Buckland (died Baltimore, 1774): Copy of Buckland inventory made by Mr. John Parker, librarian at the Peabody Institute, Baltimore. See also R. R. Beirne and J. H. Scarff, *William Buckland 1733-1774* (Baltimore, 1958).

Library of William Byrd, II: *The Writings of Colonel William Byrd of Westover in Virginia, Esqr.*, John Spencer Bassett (ed.) (New York, 1901), Appendix A; Edwin Wolf II, "The Dispersal of the Library of William Byrd of Westover", *Proceedings of the American Antiquarian Society* LXVIII (1959), 19-106.

Library of Thomas Dawes: 1809 Accession Book, Boston Athenaeum.

Library of Peter Harrison: See Newport.

Library of James Logan: Included in Hummel's study of Philadelphia. Mr. Edwin Wolf II, adds that although the Loganian Catalogue was published in 1760, it represented the books in Logan's library at his death in 1751, and that about 1765 books belonging to his brother, Dr. William Logan of Bristol, England, were sent to Philadelphia and added to the Loganian Library. Two of William Logan's books were architectural and they are designated L65 in the bibliography.

Eighteenth-Century Location Symbols

Numbers following these symbols indicate the earliest date of record for each book in the locality represented by the symbol. Since all dates fall within the eighteenth century, the first two digits have been omitted. Dates are not used with symbols representing individuals because in each case information is based on an inventory taken in a specified year. Both the Association Library and the Union Library Company merged with the Library Company of Philadelphia before 1770. Parentheses around an LCP notation in the body of the list indicate that in all probability the volume in question came from one of these other institutions.

Numbers in parentheses below represent the number of books available in each locality during the whole period under consideration. Numbers in the second line of each listing are the numbers of the books in each locality as they occur in this list.

- ALCP Association Library Company of Philadelphia (2)
58, 80
- B William Byrd, II, died 1744, library catalogued ca. 1751 (10)
5, 15, 19, 46, 47, 48, 49, 56, 69, ?
- Bb Boston booksellers (36)
3, 9, 11, 16, 20, 22, 23, 25, 28, 31, 32, 34, 35, 38, 39, 40, 41, 42, 45, 46, 49, 52, 53, 59, 63, 64, 67, 70, 72, 73, 74, 75, 79, 82, 84, 86
- Bu William Buckland, inventory at death, 1774 (13)
17, 31, 32, 33, 42, 43, 50, 52, 75, 79, 80, 81, 84
- CCM Carpenter's Company of Philadelphia Member (3)
63, 67, 79
- CLS Charleston Library Society (7)
7, 14, 17, 18, 63, 75, 86
- HCL Harvard College Library (8 titles, 10 books)
2, 7, 47, 65, 66, 71, 76, 83
- LL Loganian Library, 1751 and 1765 (5)
57, 58, 66, 69, 83
- LCP Library Company of Philadelphia (22)
1, 4, 5, 6, 13, 17, 18, 30, 37, 44, 47, 48, 56, 58, 66, 67, 75, 77, 79, 80, 84, 86
- NYb New York booksellers (26)
12, 16, 17, 21, 22, 27, 28, 29, 30, 34, 38, 41, 42, 45, 52, 55, 61, 63, 67, 72, 73, 74, 75, 79, 84, 86

- NYSL New York Society Library (3)
5, 30, 31
- Pb Philadelphia booksellers (38)
4, 10, 12, 16, 17, 18, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 34, 37, 38, 39, 41, 42, 45, 51, 52, 55, 61, 63, 67, 72, 73, 74, 75, 79, 80, 81, 84, 85
- PH Peter Harrison, inventory at death, 1775 (27)
8, 14, 17, 18, 19, 22, 23, 24, 26, 27, 34, 36, 42, 46, 52, 53, 54, 55, 62, 63, 75, 79, 80, 81, 84, 85, 87
39, 69
- RL Redwood Library (7)
4, 60, 67, 68, 75, 78, 86
- TD Thomas Dawes, died 1809, library given to Boston Athenaeum, 1809 (12)
5, 17, 18, 31, 42, 63, 69, 70, 75, 81, 82, ?
- ULCP Union Library Company of Philadelphia (7)
37, 48, 58, 66, 67, 80, 86
- Y Yale (2)
47, 58

Modern Location Symbols

- A Avery Library, Columbia University
- BaP Baltimore, Peabody Institute
- BA Boston Athenaeum
- BPL Boston Public Library
- Br Brown University
- CLS Charleston Library Society
- CW Colonial Williamsburg
- C Cornell
- D Dartmouth
- HCL Harvard University
- HH Henry E. Huntington Library
- JH Johns Hopkins
- LC Library of Congress
- LCP Library Company of Philadelphia
- NcC University of North Carolina, Chapel Hill
- NcD North Carolina, Duke University
- NcG University of North Carolina, Greensboro
- NcRS University of North Carolina, Raleigh
- NYM New York, Metropolitan Museum
- NYP New York Public Library
- NYSL New York Society Library
- O Ohio State University
- PF Free Library of Philadelphia
- PrA Providence Athenaeum
- PrP Providence Public Library
- RL Redwood Library
- RI Rhode Island School of Design
- SPNEA Society for the Preservation of New England Antiquities
- UCB University of California, Berkeley
- UCLA University of California, Los Angeles
- UP University of Pennsylvania
- USC University of Southern California
- UV University of Virginia
- VHS Virginia Historical Society
- W Winterthur
- Y Yale

Number Symbols

The numbers to the right of the listings indicate time divisions for the whole period of publication represented:

- 1—before 1700 3—1726-1744 5—1760-1775
2—1700-1725 4—1745-1759

1. Adam, Robert and James, *Works in Architecture*, Vol. 1, 1773 (vol. 2, 1779; vol. 3, 1822, posthumously.) LCP73
A, BaP, CW, C, HCL, LCP, NcD, NYM, NYP, NYSL, O, PrP, UCB, W, Y
2. Barozzio, Giacomo (da Vignola), *Regola delli Cinque Ordini*, Rome, 1617.
HCL65
A, BA, HCL, HH, JH, NcD, NYM, NYP, PF
3. Barette, —, *New Book of Ornaments for the Year 1766, Very Useful for Cabinetmakers, Carvers, Painters, Engravers, Chasers, etc.*¹
Bb67
4. *The Builder's Dictionary, or Gentleman and Architect's Companion*, 2 vols., London, 1734.
RL50, Pb54, LCP57
A, CW, LC, LCP, NcD, NYP, NYSL, RL, UV, W
5. Campbell, Colin, *Vitruvius Britannicus*, 3 vols., London, 1715 (vol. 2, 1717; vol. 3, 1725).
LCP41, NYSL58, B, TD
A, BaP, BA, Br, CLS, CW, C, HCL, HH, JH, LCP, NcD, NcRS, NYM, NYP, NYSL, O, PF, SPNEA, UCB, UCLA, UP, UV, VHS, W, Y
6. Castell, Robert, *The Villas of the Ancients Illustrated*, London, 1728.
LCP57
A, CW, C, HCL, HH, JH, LC, LCP, NYM, NYP, PF, UCB, UV, VHS, Y
7. Chambers, Sir William, *Treatise on Civil Architecture*, London, 1759.
HCL65, CLS70
A, BA, BPL, HCL, HH
8. Copland, H., *A New Book of Ornaments*, London, 1746.²
PH
9. Crunden, John, *The Carpenter's Companion, Containing 32 New and Beautiful Designs for All Sorts of Chinese Railings and Gates*, from the drawings of J. H. Morris, Carpenter, and J. Crunden.³
Bb 67
A
10. Crunden, John, *Convenient and Ornamental Architecture, Consisting of Original Designs for Plans, Elevations and Sections from the Farm House to the Most Grand and Magnificent Villa*, London, 1767.
Pb73
A, BaP, CW, C, HCL, HH, NYM, NYP, O, SPNEA, VHS, W, Y
11. Crunden, John, *The Joyner and Cabinet-Maker's Darling, or Pocket Director*, London, 1765.
Bb67
HH
12. Decker, Paul, *Chinese Architecture, Civil and Ornamental, Adapted to this Climate*. Two Parts. London, 1759.
NYb60, Pb60
A, PF, W, Y
13. Dubreuil, Jean, *The Practice of Perspective*, London, 1672 (1st ed.?)
LCP41
UCLA
14. Ferrerio, P., *Palazzi di Roma*, Rome, 1655.
B
A, C, HCL, JH, NYM, NYP, PrP, UP, Y
15. Fréart de Chambray, Roland, *Parallel of the Ancient Architecture with the Modern*, tr. by John Evelyn, London, 1664 (4th ed. 1733).
CLS70, PH
A, BaP, HCL, HH, JH, LC, LCP, NcD, NYM, NYP, PF, PrA, PrP, SPNEA, UCB, UCLA, UP, UV, VHS, W, Y
16. Garrett, Daniel, *Designs and Estimates for Farm Houses in the Counties of Yorkshire, Cumberland, Westmoreland and the Bishoprick of Durham*, London, 1747 (3rd ed. 1772).
NYb62, Pb62, Bb67
A, HCL, UCB, W
17. Gibbs, James, *A Book of Architecture, Containing Designs of Buildings and Ornaments*, London, 1728.
NYb60, Pb60, CLS70, LCP73, Bu, PH, TD
A, BaP, BA, BR, CW, C, D, HCL, JH, LCP, NYP, PF, PrA, PrP, RI, SPNEA, UCB, UP, UV, VHS, W, Y
18. Gibbs, James, *Rules for Drawing the Several Parts of Architecture*, London, 1732.
Pb54, LCP70, CLS70, PH, TD
A, BaP, BA, CW, HCL, LC, LCP, NYM, NcD, O, PF, PrP, RL, SPNEA, UCB, UP, USC, UV, VHS, W, Y
19. Halfpenny, William, *The Art of Sound Building Demonstrated in Geometrical Problems*, London, 1725.
B, PH⁴
A, CW, UP, W
20. Halfpenny, William, *The Builder's Pocket Companion*, London, 1728 (published under Halfpenny's pseudonym Michael Hoare; 3rd ed. 1747).⁵
Bb61, Pb67
CW, HH, UP
21. Halfpenny, William, *The Country Gentleman's Pocket Companion and Builder's Assistant*, London, 1753 (with John Halfpenny); (2nd ed. 1756).
NYb60, Pb60
CW, HCL, LCP, NYM, W, Y
22. Halfpenny, William, John Halfpenny, Robert Morris, and Thomas Lightoler, *The Modern Builder's Assistant or a Concise Epitome of the Whole System of Architecture*, London, 1742 (2nd ed. 1757).
NYb60, Pb60, PH
A, CW, HH, JH, NYM, PF, W, Y
23. Halfpenny, William, *A New and Complete System of Architecture, Delineated in a Variety of Plans or Elevations of Designs for Convenient and Decorated Houses*, London, 1749 (2nd ed. 1759).
Pb55, Bb60, PH
A, BaP, NYSL, W
24. Halfpenny, William, *New Designs for Chinese Temples*, London, 4 parts, 1750–1752.⁶
PH
A, CW, HH, NYM, UP, W, Y
25. Halfpenny, William, *Perspective Made Easy*, London, 1731.
Bb61 (Architecture in Perspective)

1. This is the only reference found for this book. It was advertised by Henry Webley, Crunden's publisher, in a circular dated 20 November 1765, bound with Crunden's *Joyner and Cabinet-Maker's Darling* in the Huntington Library's copy.

2. This listing and no. 3 are perhaps not strictly architectural books, and they represent the sort of arbitrary decisions on inclusion which are necessary in preparing a list of this kind. They were included as probable sources for Rococo detail.

3. Colvin gives 1770 as the publication date for all of these Crunden books. But there is no doubt about the earlier listings. The copies of no. 10 in the Avery Library and in the Huntington Library are dated, as is the Huntington's copy of no. 11. An undated, new edition of *The Carpenter's Companion* with thirty-three 'new de-

signs' from drawings by J. H. Morris, Carpenter, and J. Crunden is in the Avery Library.

4. The Halfpenny books owned by Peter Harrison have been identified by Bridenbaugh. Harrison's inventory in the Connecticut archives lists six books by Halfpenny, four quartos valued at eight, ten, and twelve shillings, an architectural pamphlet valued at six shillings, a 'pasteboard' at ten shillings, and a book of architecture at a pound. It is impossible to match these prices and descriptions to specific Halfpenny titles with any certainty. The books themselves are lost.

5. Colvin gives 1747 as the second edition date, but the Huntington Library's third edition is dated 1747.

6. William and John Halfpenny also published in 1752 a second

26. Halfpenny, William, *Practical Architecture*, London (1st ed. n.d., 2nd 1724, 3rd 1730, 5th 1736).⁷ Pb72, PH
A, BaP, Br, HCL, HH, LCP, NYP, PF, UP, UV, VHS, W
27. Halfpenny, William, *Rural Architecture in the Gothic Taste*, London, 1752 (with John Halfpenny). NYb60, Pb60, PH
CW, C, HCL, JH, LC, LCP, PrP, VHS, Y
28. Halfpenny, William, *Twelve Beautiful Designs for Farm Houses*, London, 1749 (2nd ed. 1750, others 1759, 1774). Bb60, NYb62, Pb62
CW, HCL, NYP, UV, VHS
29. Halfpenny, William, *Twenty New Designs of Chinese Lattices*, London (?)⁸ NYb60, Pb60
30. Halfpenny, William, *Useful Architecture*, London, 1752. LCP57, NYSL58, NYb60, Pb60
A, CW, LC, LCP, NYM, W
31. Hoppus, Edward, *The Gentleman's and Builder's Repository, or Architecture Displayed*, London (1st ed. date?, 2nd 1738, 3rd 1748, 4th 1760).⁹ Pb51, Bb62, NYSL73, Bu, TD
A, BaP, BA, Br, CW, HH, JH, NYM, PrP, UP
32. Hoppus, Edward, *Practical Measuring Made Easy to the Meanest Capacity, by a New Set of Tables*, London, 6th ed. 1761. Bb65, Bu
HCL
33. Johnson, Thomas, *One Hundred and Fifty New Designs*, by Thos. Johnson, carver, *Consisting of ceilings, chimney pieces, slab, glass and picture frames* . . ., London, 1761.¹⁰ Bu
A
34. Jores, J., *A New Book of Iron Work, Containing a Great Variety of Designs, (Useful for Painters, Cabinet-Makers, Carvers, Smiths, Filigree-Piercers, etc.)* . . ., London, 1759.¹¹ NYb62, Pb62, Bb70, PH
BaP, CW
35. Keay, Isaac, *Practical Measurer, or Plain Guide to Gentlemen and Builders*, London, 1718 (4th ed. 1730, 9th 1744).¹² Bb62
HCL
36. Kent, William, *The Designs of Inigo Jones*, London, 1727 (republished 1770). PH
A, BaP, BA, CLS, CW, HCL, HH, JH, LCP, NcD, NcG, NYP, PF, PrP, SPNEA, UCB, UP, USC, UV, VHS, W, Y
37. Langley, Batty and Thomas, *Ancient Masonry, Both in the Theory and in the Practice*, 2 vols., London, 1734 or 1735, 1736. ULCP65 (LCP70), Pb73
A, BaP, BA, CW, LC, LCP, PrP, RL, VHS, W, Y
38. Langley, Batty, *The Builder's Chest Book, or a Compleat Key to the Five Orders of Columns in Architecture*, London, 1727. Pb60, NYb60, Bb73
BaP, HH, LC, NYM, PrP
39. Langley, Batty, *The Builder's Compleat Assistant, Being a Library of Arts and Sciences, Absolutely Necessary to be Understood by Builders and Workmen in General*, London (2nd ed. 1738?, 4th after 1788). Pb55, Bb61
A, HCL, PrA, UP, VHS, W, Y
40. Langley, Batty, *The Builder's Director, or Bench-Mate, Containing 500 Examples Engraved on 148 Copper-Plates*, London, 1746 (2nd ed. 1751, 3rd 1767). Bb65
A, BaP, HCL, LC, NYP, VHS, W, Y
41. Langley, Batty, *The Builder's Jewel, or the Youth's Instructor, and Workman's Remembrancer*, London, 1746 (2nd ed. 1754, 11th 1768). Pb55, NYb60, Bb65
A, BaP, CW, HCL, HH, NYM, NYP, NYSL, UP, VHS, W, Y
42. Langley, Batty, *The City and Country Builder's and Workman's Treasury of Designs*, London, 1740 (2nd ed. 1741, 3rd 1750, 4th 1756). Pb54, NYb60, Bb60, PH(?)¹³, Bu, TD
A, BaP, BA, D, HCL, HH, LCP, NcD, NYM, PF, PrP, SPNEA, UCB, UP, UV, VHS, W, Y
43. Langley, Batty, *Gothic Architecture, Improved by Rules and Proportions*, London, 1742.¹⁴ Bu
A, BaP, BPL, HCL, PrP, SPNEA

edition of *Rural Architecture in the Chinese Taste*, in four parts. Part one is at Yale bound with *New Designs*.

7. An inscription in the Library Company's copy in Philadelphia reads: 'Isaac Coats bought at Ed Woolleys Vendu this book . . . 1772', according to Mr. Wolf.

8. Hummel's listing is made from the James Rivington catalogue of 1760 which lists Halfpenny's *Chinese Lattices and Palings*. Colvin includes *Twenty-six New Designs of Geometric Paling*, published in 1753. The above title was advertised by Robert Sayer in Yale University's copy of Halfpenny's *Country Gentleman's Pocket Companion* in the second edition of 1756.

9. Sometimes bound with Salmon's *Builder's Guide*, but by 1760 on its own, at least in Thomas Dawes' library. Colvin gives a first edition date of 1738, but the Huntington Library's copy is a second edition, dated 1738, also without the *Builder's Guide*.

10. This, nos. 31, 42, and 48, were not on the list when it was circulated, so that the modern locations given do not even represent the relatively small number of libraries reached in that way.

11. This is almost certainly the book which was advertised in New York and Philadelphia as *A New Book of Iron Work* . . ., by J. Jones, in Boston as Jones' *Designs for Iron Work*, and again in Philadelphia as Jones' *Ornamental Designs*. It was identified by Mr. Charles H. Elam, Archivist at the Peale Museum in Baltimore, who recognized

it as a book in the collection of the Peabody Institute in Baltimore. A Jones' *Designs* is listed in Thomas Dawes' inventory of books given by his son to the Boston Athenaeum and in Peter Harrison's inventory. In Harrison's inventory 'Inigo Jones Architecture' is listed separately, so it is quite likely that Jores' book is meant in the other Jones listing. In the case of Thomas Dawes, we cannot be sure. The volume no longer exists in the Boston Athenaeum. Perhaps the listing should read Jores, or perhaps he owned Ware's or Vardy's *Designs of Inigo Jones*, the latter a re-issue in 1744 of Kent's *Designs of Inigo Jones* of 1727. But the rest of his library does not point to the inclusion of the rarer Palladian volumes, although he did own Campbell's *Vitruvius Britannicus*.

12. Identified by Edwin Wolf, II, librarian of the Library Company of Philadelphia. As previously noted, this may have been owned in Virginia by 1728.

13. Peter Harrison is assumed to have owned Langley's *Treasury* since plate 108 of the 1740 edition was used in his design for the altarpiece in King's Chapel, Boston.

14. According to Colvin, a complete edition of this work was published in 1742, with an essay 'On the Principal Ancient Buildings in this Kingdom'. The first part was published in 1741. This publication in two parts may explain another reference in Buckland's inventory to 'Langley's Essay on Gothic Architecture'. Both editions are in the Avery Library.

44. Langley, Batty, *Practical Geometry Applied to the Useful Arts of Building, Surveying, Gardening and Mensuration*, London, 1726 (2nd ed. 1728, 3rd 1729). LCP46
A, C, HCL, LC, LCP, SPNEA, UP, W, Y
45. Langley, Batty, *The Workman's Golden Rule for Drawing and Working the Five Orders in Architecture*, London, 1756.¹⁵ Pb60, NYb60, Bb61
A, W, Y
46. LeClerc, Sebastien, *Trailé d'Architecture* . . ., Paris, 1714. English translation by Chambers, 1723-1724, *A Treatise of Architecture with Remarks and Observations* . . . for Young People, Who Would Apply Themselves to that Art. Bb61, B, PH
A, BA, CW, JH, LC, PF, PrP, SPNEA, UP, UV, W, Y
47. Leoni, Giacomo, *The Architecture of A. Palladio, in Four Books* . . ., Nicholas Dubois, tr., 2 vols., London, 1715-1716 (2nd ed. 1721, 3rd with 'Notes and Remarks of Inigo Jones now first taken from his original Manuscript in Worcester College Oxford' in 1742; French translation in The Hague, 1726). LCP32, Y43, HCL65, B(?)¹⁶
A, CLS, CW, C, D, HCL, HH, JH, NcD, NYP, NYSL, O, PF, SPNEA, UCB, UV, W
48. Leoni, Giacomo, *The Architecture of L. Alberti*, 3 vols., 1726. ULCP65 (LCP70), B(?)
A, BA, BPL, CW, C, HH, JH, LCP, NcD, UP, VHS, W, Y
49. Leyburn, William, *The Mirror of Architecture or the Ground Rules of the Art of Building according to Vincenzo Scamozzi, with the Description and Use of a Joynt Rule by John Brown, Whereunto is Added a Compendium of the Art of Building*, London, 1669 (4th ed. 1700, another 1707, 1708, 1721, 1734). B, Bb54
50. Lightoler, Thomas, *The Gentleman's and Farmer's Architect*, . . . Being Correct Plans and Elevations of Parsonage and Farm Houses . . ., London, 1762. Bu
BaP, HCL
51. Miller, John, *Elements of Architecture, Restored to its Original Perfection, with a Geometrical Explanation of its True Principles of Perspective*, London, ca. 1748 (another ed. 1759). Pb63
JH
52. Morris, Robert, *Architecture Improved in a Collection of Modern, Elegant and Useful Designs*, London, 1755. NYb60, Pb60, Bb61, Bu, PH
CW, HLC, NYP, W, Y
53. Morris, Robert, *Lectures on Architecture, Consisting of Rules Founded upon Harmonick and Arithmetical Proportions in Building*, London, 1734-1736 (2nd ed. 1759). Bb73, PH(?)¹⁷
A, CLS, CW, UCB, UV, VHS, Y
54. Morris, Robert, *Essay in Defence of Ancient Architecture, or a Parallel of the Ancient Buildings with the Modern, Shewing the Beauty and Harmony of the Former, and the Irregularity of the Latter*, London, 1728. PH
A, CW, NYSL, W
55. Morris, Robert, *Select Architecture, Being Regular Designs of Plans, and Elevations, Well Suited to Both Town and Country* . . ., London, 1757.¹⁸ NYb60, Pb60, PH
A, CW, HCL, UV, W, Y
56. Moxon, Joseph, *Practical Perspective, or Perspective Made Easie*, London, 1670. LCP70, B
A, HCL, JH, NYM, NYP, UCLA
57. Moxon, Joseph, *The Theory and Practice of Architecture; or Vitruvius and Vignola Abridg'd*, London, 1703.¹⁹ LL51
A, JH, LCP, UCLA
58. Neve, Richard, *City, Country Purchaser's and Builder's Dictionary*, London, 1703 (2nd ed. 1726, 3rd 1736). Y43, LL51, ALCP65, ULCP65 (LCP70)
BaP, BA, CW, HCL, HH, LCP, W, Y
59. Oakley, Edward, *Every Man a Complete Builder, or Easy Rules and Proportions for Drawing and Working the Several Parts of Architecture*, London, 1738 (later eds. 1766, 1774). Bb67
BaP, NYM, Y
60. Oakley, Edward, *The Magazine of Architecture, Perspective and Sculpture*, London, 1730. RL50
BaP, RL, VHS, Y
61. Over, Charles, *Ornamental Architecture in the Gothic, Chinese and Modern Taste*, London, 1758. NYb60, Pb60
A, HH, NYM, NYP, UCB, Y
62. Overton, Thomas Collins, *Original Designs of Temples and Other Ornamental Buildings* . . ., London, 1766. PH²⁰
LC, NYP, UCB, W, Y
63. Pain, William, *The Builder's Companion*, London, 1758 (2nd ed. 1762). Bb60, NYb60, Pb60, CCM62, CLS70, PH, TD
A, BaP, BA, CW, HCL, NYM, PF, PrA, SPNEA, UP, W, Y
64. Pain, William, *The Builder's Pocket Treasure, or, Palladio Delineated and Explained*, London, 1763. Bb73
A, BPL, CW, HCL, HH, UCB, W, Y

15. Colvin gives a first edition date of 1757 with a question mark. The Avery Library edition is dated 1756.

16. Byrd's inventory lists a folio and a quarto edition of Palladio. It seems likely that this southern gentleman owned the large Leoni edition and probably Godfrey Richards' *Palladio*. His folio edition of 'Alberti's Architecture' was probably also Leoni's, as is suggested in the following listing. The tenth architectural book in Byrd's library is listed as *Principes l'Architecture*, and is unidentified.

17. This may be the *Harmony of Building* which is listed in Harrison's inventory. Mr. Lawrence Kocher, according to the Colonial Williamsburg librarian, considered that the *Essay on Harmony as It Relates Chiefly to Situation and Building* was wrongly attributed to John Gwynn, and was in fact Morris's. There are three other Morris

references in the Harrison inventory which cannot be firmly identified. The prices given are almost certainly inaccurate and there are not even short titles, so that identification is risky. In the absence of further evidence, Bridenbaugh's identifications have been used.

18. Colvin dates this 1755 and gives a second edition date of 1759. The Avery Library copy is dated 1757, apparently the first edition.

19. Moxon also published his Barozzio translation separately as *Vignola: or the Compleat Architect*. The Vitruvius is listed in the R.I.B.A. catalogue as by 'Mr. Perrault'.

20. Bridenbaugh thought this was the 'Overt arch quarto' referred to in the Harrison inventory, but it might also have been Over.

65. Palladio, Andrea, *I Quattro Libri dell'Architettura*, Venice, 1570; 1581.
HCL65
A, BaP, CW, D, HCL, JH, NcC, NYP, O, UP, UV, Y
66. Perrault, Claude, *On the Five Orders of Columns in Architecture*, 1st French edition, Paris, 1683, tr. by John James, London, 1708 (2nd ed. 1722).
HCL23, ULCP54 (LCP70), LL65 (Paris, 1693)
A, BA, CW, HCL, HH, JH, LCP, NYM, NYP, NYSL, NcD, PrP, UV, VHS, W, Y
67. Price, Francis, *The British Carpenter, or a Treatise on Carpentry*, London, 1733 (later eds. 1735, 1753, 1759, 1765).
LCP39, RL50, ULCP53, Pb54, NYb60, Bb61, CCM71
A, CW, D, HH, LC, LCP, RL, UV, VHS, W, Y
68. Ralph, James, *Critical Review of the Public Buildings . . . in London*, London, 1734.
RL64
A, Br, CW, HCL, HH, LCP, NYM, UCLA, Y
69. Richards, Godfrey, tr., *The First Book of A. Palladio's Architecture . . . with an Appendix Touching Doors and Windows*, by Pr. Le Muet, Architect to the French King, London, 1663 (2nd ed. 1668, 3rd 1676, 6th 1700, 12th 1773).²¹
B(?) , LL65, TD
BA, CW, LCP, NcD, NcRS, SPNEA, UCLA, UV, VHS, W
70. Riou, Stephen, *Short Principles for the Architecture of Stone Bridges, with Practical Observations . . .*, London, 1760.²²
Bb73, TD
A, BA, LC, LCP, RL
71. Rusconi, Giovanni, *Del l'Architettura*, Venice, 1590.
HCL65
A, BaP, BA, HCL, JH, NYM, NYP, UP, Y
72. Salmon, William, *The Builder's Guide and Gentleman's and Trader's Assistant*, London, 1736.²³
Bb54, NYb60, Pb60
A, BA
73. Salmon, William, *The Country Builder's Estimator or the Architect's Companion*, London, 2nd ed. by Hoppus, 1737 (3rd ed. 1746, 5th 1755, 7th 1759, 8th by J. Green 1770).
NYb60, Pb60, Bb73
CW, HCL, JH
74. Salmon, William, *The London and Country Builder's Vade Mecum: or the Complete and Universal Estimator*, London, 1745.
NYb55, Pb60, Bb61
CW, HCL, LCP, NYM, W, Y
75. Salmon, William, *Palladio Londinensis, or, the London Art of Building*, London, 1734 (2nd ed. 1743, 3rd 1748, 4th 1752, 5th 1755).²⁴
Pb51, NYb60, Bb61, RL64, LCP70, CLS70, Bu, PH, TD
A, BaP, BA, Br, CW, HCL, LC, LCP, NYP, RL, SPNEA, UP, VHS, W, Y
76. Serlio, Sebastiano, *Tutte L'Opera d'Architettura*, Venice, 1684.
HCL65
A, BA, CW, C, HCL, HH, JH, NYP, RL, RI, PF, UP, Y
77. *Several Prospects of the Most Noted Buildings in London*, London, 1724.²⁵
LCP70
78. Smith, James, *The Carpenter's Companion*, London, 1733.²⁶
RL64
UP, W, Y
79. Swan, Abraham, *The British Architect, or, the Builder's Treasury of Staircases*, London, 1745 (2nd ed. 1750, 3rd 1758).
Pb60, NYb60, Bb63, CCM65, LCP75, Bu, PH
A, BaP, BA, Br, CW, HCL, JH, LC, LCP, NcD, NYM, NYP, NYSL, UCB, UP, USC, UV, W, Y
80. Swan, Abraham, *A Collection of Designs in Architecture*, 2 vols., London, 1757.
Pb62, ALCP65, ULCP65 (LCP70), Bu27, PH
A, BaP, BA, CW, HCL, LCP, NcD, NYP, PF, SPNEA, UCB, UCLA, UP, VHS, W, Y
81. Swan, Abraham, *The Carpenter's Complete Instructor in Several Hundred Designs . . .*, London, 1759 (2nd ed. 1768).²⁸
Pb73, Bu, PH, TD
BA, Y
82. Swan, Abraham, *Upwards of One Hundred and Fifty New Designs for Chimney Pieces . . .*, London, 1765.²⁹
Bb73(?), TD
BA, HH, Y
83. Vitruvius, *De Architectura*, Como, 1521.
HCL65 Venice, 1584.
LL51 Amsterdam, 1649.
A, BaP, BA, CLS, CW, C, D, HCL, HH, JH, NYM, NYP, UCB, UP, Y
84. Ware, Isaac, *The Complete Body of Architecture*, 2 vols., London, 1736 (later eds. 1760, 1764).³⁰
Bb60, NYb61, Pb61, LCP64, Bu, PH
A, BA, CW, D, HCL, HH, JH, LC, LCP, NcD, NYM, NYP, PF, PrA, RL, SPNEA, UCB, UV, VHS, W, Y

21. Fiske Kimball is the source for these edition dates in *Domestic Architecture of the American Colonies and of the Early Republic* (New York, 1922), p. 58, except for the second and third editions. A second edition is in the library of the Essex Institute, Salem, inscribed 'Tomas Pars'; a third edition is in the William Andrews Clark Memorial Library of the University of California, Los Angeles.

22. Bound with Swan's *Upwards of One Hundred and Fifty New Designs for Chimney Pieces . . .*, in the Dawes Library at the Boston Athenaeum.

23. Apparently this was advertised separately, although Colvin notes that it was published at the end of Hoppus' *Gentleman's Repository* in 1748. Although no locations were reported for it, it exists in the Boston Athenaeum and in the Avery Library. The Avery copy is dated 1736.

24. Beginning with the third edition of 1748 'with great Alterations and Improvements by E. Hoppus' (from the Dawes copy in the Boston Athenaeum). Other edition dates are from Colvin.

25. This is Kimball's date (*Thomas Jefferson, Architect* [Boston, 1916], p. 35), with a corrected title from Edwin Wolf of the Library Company of Philadelphia.

26. I am indebted to Mr. Wolf for identification of this work.

27. Buckland's inventory lists Swan's 'British Treasury' (no. 78) and Swan's 'Architect', almost certainly this other major publication.

28. Hummel noted that Philadelphia bookseller David Hall ordered two copies of Swan's *Designs in Carpentry* in 1755—before the work listed here was published. These two references are not included in the total number of references to this work.

29. Swan's *Designs for Chimneys* advertised in 1773 by Henry Knox of Boston's 'London Book-Store' may have been this title on another Swan publication, *Designs for Chimnies and the Proportion They Bear to Their Respective Rooms*, to which Colvin gives a publication date of 1765. A copy at Yale is undated.

30. Colvin suggests a first edition date of 1735 for this work, but it seems clear that it did not appear before 1736. He also questions the date 1735 for Ware's *Designs of Inigo Jones*, but there is a dated copy at the University of Virginia. The third edition date of 1757 must also be correct since there are dated copies at Yale and at the Virginia Historical Society.

85. Ware, Isaac, *Designs of Inigo Jones and Others*, London, 1735 (later eds. 1743, 1756).
Pb54, PH
A, BaP, BA, Br, CLS, CW, C, HCL, HH, JH, LC, LCP, NcD, NYM, O, PrP, UP, UV, VHS, Y
86. Ware, Isaac, *The Four Books of Andrea Palladio's Architecture* . . . , London, 1737.
ULCP54 (LCP70), Bb60, NYb60, RL64, CLS70
A, BA, CW, JH, LCP, NYSL, PrP, RL, UCLA, VHS, W
87. Ware, Isaac, William Kent and Thomas Ripley, *The Plans . . . of Houghton in Norfolk, . . . Delineated by I. Ware and W. Kent . . .*, London, 1735.
PH
A, BaP, CW, HCL, HH, LCP, NYM, NYP, W, Y

Number of References to the Listed Books

	Ref.	Yr. of Pub.	Earliest Recorded American Reference
1. Price, <i>British Carpenter</i>	26	1733	1739
2. Salmon, <i>Palladio Londinensis</i>	25	1734	1751
3. Langley, <i>Builder's Treasury</i>	20	1740	1754
4. Swan, <i>British Architect</i>	20	1745	1760
5. Hoppus, <i>Builder's Repository</i>	19	1738	1751
6. Langley, <i>Builder's Jewel</i>	17	1746	1755
7. Halfpenny, <i>New and Complete System</i>	13	1749	1755
Swan, <i>Collection of Designs</i>	13	1757	1762
8. Ware, <i>Palladio</i>	12	1737	1754
Gibbs, <i>Architecture</i>	12	1728	1760
9. Langley, <i>Workman's Golden Rule</i>	9	1756	1760
Pain, <i>Builder's Companion</i>	9	1758	1760
10. Salmon, <i>London and Country Builder</i>	8	1745	1755
Ware, <i>Complete Body of Architecture</i>	8	1736	1760
11. Langley, <i>Builder's Assistant</i>	7	1738(?)	1755
		(2nd ed.)	
12. Halfpenny, <i>Builder's Pocket Companion</i>	6	1728	1761
13. Halfpenny, <i>Useful Architecture</i>	5	1752	1757
Gibbs, <i>Rules for Drawing</i>	5	1732	1754
14. <i>Builder's Dictionary</i>	4	1734	1750
Campbell, <i>Vitruvius Britannicus</i>	4	1715-25	1741
Halfpenny, <i>Modern Builder's Assistant</i>	4	1742	1760
Jores, <i>New Book of Iron Work</i>	4	1759	1762
Langley, <i>Builder's Chest Book</i>	4	1727	1760
Leoni, <i>Palladio</i>	4	1715-16	1732
Morris, <i>Architecture Improved</i>	4	1755	1760
Neve, <i>Dictionary</i>	4	1703	1743
Perrault, <i>On the Five Orders</i>	4	1708	1723
		(Paris 1683)	
Salmon, <i>Builder's Guide</i>	4	1736	1754
Salmon, <i>Country Builder's Estimator</i>	4	1737	1760
		(2nd ed.)	
Swan, <i>Carpenter's Complete Instructor</i>	4	1759	1773
15. Garrett, <i>Designs . . . for Farm Houses</i>	3	1747	1762
Hoppus, <i>Practical Measuring</i>	3	1761	1765
Morris, <i>Select Architecture</i>	3	1757	1760

- Richards, *Palladio* 3 1663 ca. 1751
- Ware, *Designs of Inigo Jones* 3 1735(?) 1754
16. Chambers' *Treatise* 2 1759 1765
- Fréart de Chambray, *Parallel* 2 1664 1770
- Halfpenny, *Art of Sound Building* 2 1725 1775
- Halfpenny, *Perspective* 2 1731 1761
- Halfpenny, *Practical Architecture* 2 1724 1772
- (2nd ed.)
- Halfpenny, *Rural Architecture* 2 1752 1760
- Halfpenny, *Twelve Beautiful Designs* 2 1749 1760
- Langley, *Ancient Masonry* 2 1734-35 1765
- (?)
- Langley, *Builder's Director* 2 1746 1765
- LeClerc, *Traité* 3 1714 1761
- Leoni, *Alberti* 2 1726 ca. 1751
- Leyburn, *Scamozzi* 2 1669 ca. 1751
- Morris, *Lectures* 2 1734-36 1773
- Moxon, *Practical Perspective* 2 1670 ca. 1751
- Riou, *Short Principles* 2 1760 1773
- Swan, *Upwards of 150 New Designs* 2 1765 1773
- Vitruvius, *De Architectura* 2 — 1751

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17. Adam, *Works in Architecture*, vol. 1 1773 1773
- Barozzio, *Regola* — 1765
- Baretti, *New Book* 1766(?) 1767
- Castell, *Villas of the Ancients* 1728 1757
- Copland, *New Book* 1746 1775
- Crunden, *Carpenter's Companion* (?) 1767
- Crunden, *Convenient and Ornamental Architecture* 1767 1773
- Crunden, *Joiner's and Cabinet-Maker's Darling* 1765 1767
- Decker, *Chinese Architecture* 1759 1760
- Dubreuil, *Practice of Perspective* 1672(?) 1741
- Ferrero, *Palazzi* 1655 ca. 1751
- Halfpenny, *Country Gentleman's Pocket Companion* 1753 1760
- Halfpenny, *Chinese Temples* 1750-55 1775(?)
- Halfpenny, *Chinese Lattices* 1753(?) 1760
- Johnson, *150 New Designs* 1761 1774
- Keay, *Practical Measurer* 1718 1762
- Kent, *Inigo Jones* 1727 1775
- Langley, *Gothic* 1742 1774
- Langley, *Prac. Geometry* 1726 1746
- Lightoler, *Gentleman's and Farmer's Architect* 1762 1774
- Miller, *Elements of Architecture* ca. 1748 1763
- Morris, *Essay in Defence of Ancient Architecture* 1728 1775
- Moxon, *Theory and Practice of Architecture* 1703 ca. 1751
- Oakley, *Complete Builder* 1738 1767
- Oakley, *Magazine* 1730 1750
- Over, *Ornamental Architecture* 1758 1760
- Overton, *Original Designs* 1766 1775
- Pain, *Builder's Pocket Treasure* 1763 1773
- Palladio, *L'architettura* — 1765
- Ralph, *Critical Review* 1734 1764
- Rusconi, *Del L'architettura* — 1765
- Serlio, *Tutte l'opere* — 1765
- Several Prospects of . . . Buildings in London 1724 1770
- Smith, *Carpenter's Companion* 1733 1764
- Ware, Kent, Ripley, *Designs of Houghton* 1735 1775

AMERICAN NOTES

Early Maryland Plasterwork and Stuccowork

ROBERT L. RALEY

Although it is an important subject, we know of very little published on the history of plastering in this country.

In the author's period we note Benjamin Franklin's interest in fireproofing by plaster (see Franklin to Jane Mecom, 20 September 1787, in Van Doren, *Franklin's Autobiographical Writings*, p. 684). The remains of two houses built by him at 316-318 Market Street, Philadelphia, in 1786-1787 have recently been rediscovered. I. Jones' fire insurance survey (Philadelphia, Mutual Insurance Co., Nos. 230 and 231, July 1787) describes the chimney breast paneling in plaster and other features. A recent article on the subject is Robert Donald Crompton, 'William Thackara, Jr., Master Plasterer of Early Philadelphia', *Plastering Industries* XLVI, no. 3 (October, 1960), 27-37. Thackara lived 1770-1823. Fine decorative plasterwork is shown in a traveling exhibition 'Irish Architecture of the Georgian Period' now being circulated by the Smithsonian Institution, according to an illustrated brochure (S.I. Publication 4428) sent us by Richard H. Howland, now Curator of Civil History there.

Mr. Raley is a practicing architect on Route 3, Newark, Delaware. He became interested in Irish influence in America while preparing a thesis as a Winterthur fellow. Mr. Raley's report on Graeme Park, Colonial Governor Keith's house at Horsham, Pennsylvania, was published in March 1960.

—Editor

One of the most interesting aspects of Baltimore and Annapolis architecture in the last quarter of the eighteenth century is the connection between the excellent Maryland plasterwork and that great Irish contribution to the art of building, decorative stuccowork. There are many early records of plasterers in the Maryland colony. John Wakefield, a plasterer, and Richard Saddler, 'an Irishman . . . plasterer by trade, about 35 years of age', were described as having run away from William Buckland in April 1774.¹ An incident a few months earlier, perhaps not amusing at the time to Henry Treen, occasioned his announcement that his wife Catherine 'in violation of her solemn vow, [had] behaved herself in the most disgraceful manner . . . with a certain William Collins a plaisterer [sic].'² Twenty-

five years later, however, the same William Collins was still following his earlier trade at 84 Charles Street in Baltimore, it is to be hoped in a less scandalous way.³

One of the earliest types of Maryland decorative plasterwork is to be found in the Chase House in Annapolis. Still unfinished when it was bought by Samuel Chase in 1771, William Buckland was hired to complete the woodwork and other interior finishings for the house. His inventory did not contain listings of any tools other than those for wood carving; however, Buckland did have indentured plasterers working for him. It is important to note that the plasterwork in the Chase House was done not by Buckland's men, but by the firm of Rawlins and Barnes at a cost of £208.13.0.⁴ Fortunately, part of their original work is still in place in the drawing room, and of special merit are the plaster walls, for they were modeled to resemble large raised panels similar to those of earlier wood construction.

Interestingly enough, this type of plaster wall paneling is also to be found in Ireland, especially in the houses built between 1740 and 1750 (fig. 1). Mr. C. P. Curran of Dublin, who has written many articles on the history of Irish plasterwork, has called attention to the writings of Dr. Samuel Madden, who published for the Irish gentry in 1737 a book, *Reflections and Resolutions*.⁵ Among his suggested ways to improve the condition of the country there was one concerning the construction of county seats. Madden 'wished indeed, that even our gentlemen would . . . imitate Colonel Newburg . . . who as well as several others' used 'stucco-work instead of Wainscot'. Further consternation over the possibility of fire prompted the warning that the 'fashion of wainscoting all our rooms keeps us in almost as much hazard by the negli-

3. *Baltimore Directory for 1809*.

4. Lloyd Family Papers on loan to the Maryland Historical Society, Baltimore, by Mrs. Morgan Shiller and Mrs. Thomas Hughes.

5. Samuel Madden, D.D., *Reflections and Resolutions Proper For The Gentlemen of Ireland As To Their Conduct for the Service of Their Country* (Dublin, 1737).

1. *Maryland Gazette*, 7 April 1774.

2. *Maryland Gazette*, 8 January 1774.



Fig. 1. Staircase, house at 33 Molesworth Street, Dublin. Wood stairway with painted plaster wainscot and wall decoration, ca. 1740 (photo: Patrick Tutty).

gence of the servants and makes them [the houses] as liable to fire as the wooden houses of the Moscovites. . . .⁶

Shortly after its publication in Ireland, raised paneled stuccowork came into use, especially in the houses on Clare and Molesworth Streets in Dublin (fig. 2). As we have seen, the same large-fielded, raised-paneled plasterwork was used in Maryland homes. From the number of those still standing, it is probable that a similar wall finish was used in many that are no longer extant. Besides the houses in Annapolis, this type of raised-panel plaster decoration is also to be found at Mount Clare in Baltimore (fig. 3), and in the old Ridgely House on the grounds of the Sheppard Pratt Hospital near Towson.

The firm of Rawlins and Barnes came to Annapolis in 1771. They advertised that they were from London and took

. . . this Method of informing the Gentlemen that they intend carrying on with Care and Diligence the said Business. Those Gentlemen who please to favour them with their Commands, may depend on their work being done as neat as in London. By their humble Servant,
John Rawlings & James Barnes.

6. Madden, *Reflections*, p. 12

N.B. Gentlemen may be waited on with designs for Ceilings, and Cornices on the shortest notice, by directing for the above, at Mr. Charles Bryan's, Shoe-maker in Annapolis.⁷

Perhaps the attractions of the new port on the Patapsco became too strong for Rawlins, for by 1784 he had moved his business to Baltimore. He announced about this time that he intended to leave for Europe and that he had placed 'his hands under the care of Thomas Hammond and William M'Cleshon, of the same branch of business and [they would] execute anything in that line during his absence.'⁸ He also acknowledged 'the many favors' that had 'already been conferred on him, during the time of his residence' in Baltimore. During this short interval it is probable that Rawlins did not actually work as a stuccodore, but rather as a designer and manufacturer of plaster ornaments. It is fortunate that so much of his work can be documented, and it is even more rewarding that some of his work is still extant.

During the period of alterations in the mid-1780s at Perry Hall, Harford County, Harry Dorsey Gough hired Rawlins to do the plasterwork. Following his usual practice, Rawlins placed a superintendent on the job, but supplied the drawings and cast ornaments for the work. Richard Tharp was appointed supervisor at Perry Hall.⁹ It took nearly three years to complete the plaster decorations, and workmanship amounted to almost £350.¹⁰ Unfortunately, all of this was destroyed when part of Perry Hall was burned.

Working under Tharp at Gough's house was a young Irish plasterer named Joseph Kennedy. His work must have been more than satisfactory, for Gough gave him an excellent recommendation.¹¹

Perry Hall, September 28, 1789.

The Bearer, Joseph Kennedy, has lived with me near Three Years, and truly deserves the Character of an honest, faithful, Industrious Man. He is a very good Stucco-workman, Plasterer and Painter: and I sincerely wish that he may meet with Success in his Business, equal to his Merit.

This letter must have been a good recommendation, for in October of the same year Kennedy advertised that he had then settled in Baltimore and would 'undertake to perform the several Branches of his Profession, in the most approved and latest Fashions . . . Having been bred under as good Workmen as any in Ireland. . . .' For an additional reference he volunteered that 'a specimen of

7. *Maryland Gazette*, 14 February 1771.

8. *Maryland Journal & Baltimore Advertiser*, 2 November 1784.

9. See article by Worth Bailey 'General Washington's New Room', *Journal of the Society of Architectural Historians* x (1951), 16-18.

10. Gough Account Books, Maryland Historical Society.

11. Although this letter was signed by Gough on 28 September 1789, it was not published until 6 October. *Maryland Journal & Baltimore Advertiser*, 6 October 1789.

his work [might] be seen at Mount Clare near town.¹² The plaster wall treatment of the Carroll House is almost identical to that used in the Chase House in Annapolis. It is doubtful that Kennedy could have completed this work in less than one month after he had left Perry Hall, so the actual work must have been executed at Mount Clare while Kennedy was still employed by Rawlins or another stuccoworker. However, by the following May he had added an additional reference to his advertisement. This was 'the House of Zebulon Hollingsworth, Esq.; near the Court-House.'¹³ When Kennedy again advertised in 1790, he did not mention any additional work, but he had then 'commenced Partnership' with another stucco workman named Littlejohn.¹⁴

In 1787, when George Washington engaged Rawlins to do the ceiling for the 'New Room' at Mount Vernon, he wrote to his old wartime aide, Tench Tilghman, for advice. He sent him the plans and estimates for Rawlins' work and suggested that Tilghman visit Perry Hall to inspect the ceilings and to compare the estimates with Gough. Rawlins' charges Washington considered very high since he thought 'most of the work is cast as easily

12. *Maryland Journal & Baltimore Advertiser*, 6 October 1789. Mount Clare is now an historic house museum operated by the Colonial Dames.

13. *Maryland Journal & Baltimore Advertiser*, 14 May 1790.

14. *Maryland Journal & Baltimore Advertiser*, 14 May 1790.



Fig. 2. Raised-panel plasterwork, house at 33 Molesworth Street, Dublin. The wainscot has been painted to simulate a different wood (photo: Patrick Tutty).



Fig. 3. Raised-panel plasterwork, Mount Clare, Baltimore (courtesy: Maryland Historical Society).

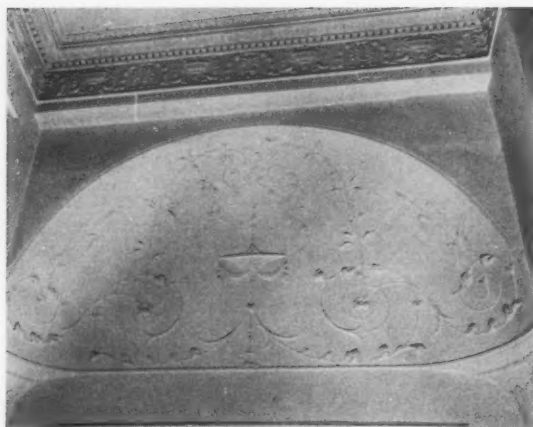


Fig. 4. Niches in Adam style in eighteenth-century Irish house, now Russell Hotel, St. Stephen's Green, Dublin.

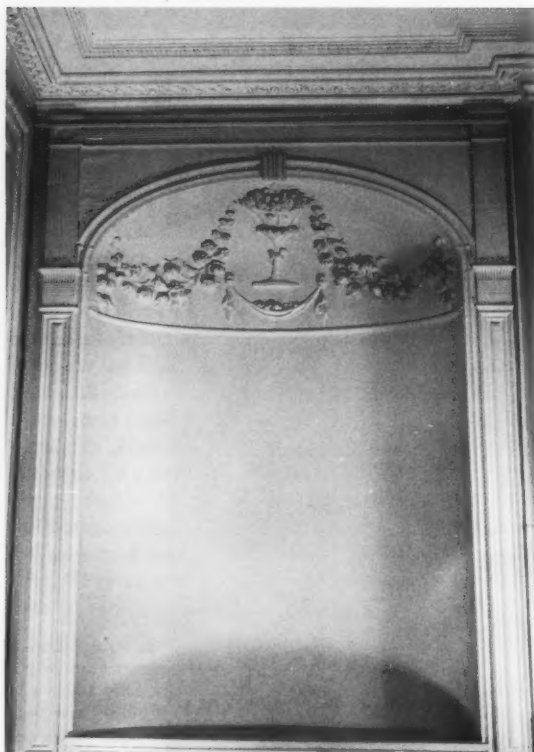


Fig. 5. Stuccowork in niches of the drawing room, Clifton, home of Henry Thompson, the Baltimore merchant.

as lead run into a mould.¹⁵ After the final arrangements had been made, Rawlins again hired Tharp to supervise the work. It is possible that Richard Tharp was one of the Irish family of stuccoworkers by that name, and related to Charles Tharp who was listed in *Wilson's Dublin Directory* for 1781.¹⁶

Before the work had been completed at Perry Hall, John Rawlins died. His widow carried on his 'Composition-Work in all its Branches.' This work she described as 'Mouldings, and Ornaments for Doors, Windows, and for Wood Cornices. . . .'¹⁷ This type of plasterwork employed the addition of decorative elements to the woodwork rather than depending for effect on large plain surfaces. Cornices were especially adapted to this form of decoration, and in the drawing room of the Chase House the stucco cornice is decorated with ribbons, grapes, roses, scrolls, and a Greek fret. It is interesting to note that this also follows late eighteenth-century Irish plasterwork through the use of these naturalistic elements. With the increasing influence of Robert Adam in London, the English plasterworkers used more archaeologically correct details arranged in a proper classical pattern. Though the Irish workmen were influenced by Adam's designs, their love of naturalistic details and an overwhelming preference for French decorative elements led them not only to retain their own native characteristics, but also to overlay them with the Adam formality of arrangement (fig. 4).

This continuity of naturalistic decorative forms is also quite strong in the stuccowork in Baltimore. The plasterwork in the niches in the drawing room at Clifton represents baskets of flowers (fig. 5), and the elaborate cornices at Homewood and Willowbrook are also of this type. The plaster ceiling in the oval drawing room of Willowbrook is of such excellent design and craftsmanship that it should be ranked as one of the finest examples of this type of stuccowork in Baltimore. The lines radiating from a center point reflect the Adam school, but the naturalistic ornaments certainly would not have been found in current London work. Many of the devices used in this design were probably produced in a local shop, since they are similar to those used at Mount Vernon which are known to have been cast in Baltimore and shipped to Washington's estate.

Another form of plasterwork in Baltimore was the barrel or 'groin-arch', used especially in corridors and hallways (fig. 6). This is certainly closely associated in concept with the loggias as described by Vitruvius. John and

15. Edith Rossiter Bevan, 'Perry Hall, Country Seat of the Gough and Carroll Families', *Maryland Historical Magazine* xlv (1950), 38.

16. The residence of Charles Tharp was at 10 N. Cumberland Street, Dublin. An example of his work is extant in the board room of the King's Hospital School (Bluecoat School) in Dublin which he executed from the designs of Thomas Ivory.

17. *Maryland Journal & Baltimore Advertiser*, 19 August 1791.

James Hannen, styling themselves 'Architects and Builders', advertised in 1791 that they 'executed geometrical Staircases' and 'corridors, with Groin-Arches'.¹⁸ Twelve years later the ceiling of the cross-corridor of Homewood was built with just such 'groin-arches'.

From the *Builder's Guide*, published in Dublin in the late eighteenth century, we know the exact cost of such work. To furnish a house with 'cable mouldings wrought in hall, to represent a groin with a center raffled leaf to suspend a globe' cost £7.0.0, and to furnish '4 consoles at bottom with a leaf' amounted to £2.5.6. To ornament the center of a room 'one ornamental centre on the ceiling . . . with an oval reeding round the same 5 by 3, richly done' was valued at £3.8.3.¹⁹ The cross-hall at Homewood represents a splendid arrangement of all of these ornaments.

18. *Maryland Journal & Baltimore Advertiser*, 19 August 1791.

19. Thomas Humphreys, *The Irish Builder's Guide* (Dublin, 1813) p. 86.

PLASTERWORKERS AND STUCCOWORKERS WORKING IN MARYLAND 1785-1815

A check list compiled from contemporary sources

PLASTERWORKERS

Alford, Joseph (Allford)
Allender, Frederick
Alter, John
Armitage, James
Armitage, John
Aulford, John (Allford)
(Alfred)
Bilson, Jno.
Boustor, Peter
Brewer, John
Briedenbaugh, J. & V.
Briedenbaugh, Valentine
Burton, Richard
Callander, John
Carter, Thomas
Cating, Mathew
Clare, Isaac
Clarke, Wm.
Collins, William
Craig, Thomas
Daley, Daniel
Day, Cornelius
Dick, James
Dunbar, William
Ellender, Frederick
Ellenger, Frederick
Ellicott, James
Elliot, James (Elliott)
English, David
Etting, John
Fisher, James
Gibbs, Nicholas
Guishard, David (Gushard)
Hamel, Charles
Hammer, Henry

Hammond, Thomas
Henderson, James
Henderson, William
Hill, James
Hill, Thomas
Holton, Thomas
Holton, William
Houlter, John (Holton)
Jennings, James
Jones, Michael
Kennedy, Joseph
Kessler, John
Kitts, Barney
LaPlas, Joseph
Littlejohn, Thomas
Lock, Wm.
Marks, William
Maxwell, Wm.
McCausland, Thomas
M'Cleshon, William
McCraden, Isaac (McCredan)
McDonald, Charles
McGlushin, William
(M'Cleshon)
Miltz, William
Nicoll, William
Nilson, John
Owens, Nicholas
Parr, Wm.
Patterson, Walter
Pichaver, Johnathan
(Pickhaven)
Pickhel, Jonathan
Poly, Jacob
Ponney, Joseph
Pools, William



Fig. 6. 'Groin-arches' in plasterwork, corridor of Homewood, Baltimore, ca. 1803 (courtesy: HABS).

Potee, Peter, Jun.
Powell, William (Powel)
Price, William
Rawlins, John
Rawlins, Mary
Scarf, George
Shortin, George
Spence, George
Spence, Robert
Smith, James and George
Smith, Tenence
Starr, James
Suink, John
Tevener, William
Voice, Wm.

Whitelock, Charles
Wilson, John
Zorn, Christian

PLASTER AND STUCCO- WORKERS

Kennedy & Littlejohn
LaPlas, Joseph
Patterson, Walter
Rawlings and Barnes
Whitelock, John

PLASTER OF PARIS MANUFACTURER

Fulton, Wm.

John Haviland before 1816

AGNES ADDISON GILCHRIST

Past president of SAH, editor of its *News Letter* and consultant to Sleepy Hollow Restorations, Inc., Mrs. Gilchrist is making a study of the Dutch background of New York architecture. The 1961 SAH overseas tour she arranged with the Netherlands government was devoted to this subject.

—Editor

John Haviland (1792–1852) came to the United States in September 1816 at the age of twenty-three.¹ All the ideas and technological innovations which made him a famous American architect he had learned before he came.

Haviland was born on 15 December 1792 at Gundenham Manor, Somerset (fig. 1).² The Manor was bought by Matthew Haviland (d. 1673) from Sir Nicholas Hassel. It was probably built in the early seventeenth century. Now it is a long, narrow rectangular building with a plain gable roof. Each generation has altered and repaired the house. The Manor included many acres of ground in three parishes, but the 'Mansion' as it is referred to in early documents is a very simple, unpretentious building.



Fig. 1. Haviland's boyhood home, Gundenham Manor, Somerset (photo: author).

John was the second son of James Haviland (1755–1802), minister of the Church of England, and of Ann Cobley of Devon.³ His childhood was spent at the Manor. The parish church which he attended was Budville Langford, built in the fourteenth century, less than a quarter mile away. His son John de Havilland erected a memorial window in the church which today reminds visitors of Haviland's Somerset boyhood.⁴ In his formative years he

saw the late English Gothic of his church, the simple brick row houses of Wellington,⁵ and the grander houses of the shire town Taunton seven miles away. In this ancient city, of particular importance in the early Middle Ages, there were buildings which must have impressed young Haviland; for instance, there was the Castle (now a museum), a brick octagonal meetinghouse with no pulpit or altar, built for Wesley in 1763, and a late mediaeval hospital (added to, but still having its original use) built on a radial plan.

When Haviland was fourteen he was apprenticed to James Elmes,⁶ a loyal friend of Haviland's uncle Benjamin Robert Haydon.⁷ Elmes' office was in London so Haviland must have seen all the late Adam and early neoclassical buildings which had recently been erected including those by the popular John Nash (1752–1835). Elmes was a many-sided complex character. He wrote the great life of Sir Christopher Wren (published 1823), edited (1816–1820) the *Annals of Art*, and was at heart a mixture of reformer and mystic.

In 1812, when Haviland was nineteen and still in Elmes' office, the church of St. John in Chichester was completed (fig. 2).⁸ It was designed by Elmes, but the superintendence of the construction was completed by Haviland as Elmes became sick. This Gothic Revival church had the gallery supported by cast-iron pillars.⁹

In the early years of the nineteenth century many visionaries thought the Golden Age was just around the corner through the perfectibility of man. The more practical minded like the pioneers John Howard and Jeremy Bentham concentrated on prison reform.¹⁰ James Elmes, though he took many of his ideas from both Howard and Bentham, was not far behind in publishing a treatise on the subject: *Hints on Prison Construction* (1817).

England was not an easy place to make a living in 1814 because of Napoleon's continental system which closed

5. Arthur Wolsey, better known as the Iron Duke, chose the title of Duke of Wellington, although he had no connection with the town. In 1851 the town erected a tall column in his honor on the highest hill and it now dominates the countryside.

6. H. M. Colvin, *A Biographical Dictionary of English Architects, 1660–1840* (1954), p. 193.

7. Haydon, the classical painter, married a sister of Haviland's mother. Haviland is not mentioned in the index of Willard Bissell (ed.), *The Diaries of Benjamin Robert Haydon* (Cambridge: Harvard University Press, 1960). James Elmes is twice mentioned and once with great affection.

8. *Victoria County History, Sussex*, pp. 111, 163.

9. This of course was no innovation in England.

10. John Howard, *The State of the Prisons in England and Wales with Preliminary Observations, and an Account of Some Foreign Prisons* (1777). Jeremy Bentham, *Rationale of Punishments and Rewards*. Bentham negotiated with the British government for nearly twenty-five years for the erection of the circular Panopticon for the central inspection of convicts. These plans were finally abandoned, and in 1813, while Haviland was still in London, Bentham received £23,000 in compensation following an act of Parliament.

1. Joseph Jackson, *The Development of American Architecture* (Philadelphia, 1926).

2. John von Sonntag de Havilland, *A Chronicle of the Ancient and Noble Family of De Havilland* (St. Louis: The Mekeel Press, 1895).

3. Ann Cobley, daughter of a minister, was married to James Haviland 12 April 1781.

4. John de Havilland returned to England, became interested in genealogy, and traced the family to the de Havillands of Jersey.



Fig. 2. Interior, St. John's Church, Chichester (courtesy: National Buildings Record).

European ports to English ships thus undermining her economy until the Emperor's system was broken by Russia in 1812. Thus when Haviland was offered a post in the Imperial Corps of Engineers by a Russian uncle, Admiral Count Mordwinoff,¹¹ he accepted and after traveling through war-devastated Europe arrived in St. Petersburg. There he saw one of the newest and handsomest cities in the world.¹² For seventy-five years the Tsars and the Tsarina Catherine had been importing French and Italian architects as well as the great Scottish architect Charles Cameron.¹³ The result was the most modern city in Europe and a much more imposing one than Washington, D. C.

The impact of the new Bourse (completed 1812) in St. Petersburg must have been tremendous on the young architect. A law passed in 1810 requiring metal roofing for all buildings to prevent fires must have meant an exciting change in methods of construction which doubtless was noticed by Haviland. Russia produced at this moment more and better iron than any other country and her architects had used it for construction longer and in more varied ways than builders in other countries. Haviland absorbed what he saw of the Russian technological and stylistic innovations, but he found no opportunity for individual advancement. In 1816 he met Admiral von Sonntag, who had Philadelphia connections and who was em-

ployed by the United States government.¹⁴ Haviland thought he saw wide vistas opening before him in America where liberty and individual advancement were the beacons. He decided to leave Russia and the employ of the Tsarist government for the freedom of the democratic United States.

He brought to this country a knowledge of iron construction as demonstrated by the fact that he used iron in almost all of his buildings. His first cast-iron front was for the Miner's Bank in Pottstown, Pennsylvania, of 1828.¹⁵ A knowledge of prison planning he brought from his home country as well as his interest in the neoclassical architectural styles.¹⁶ Haviland became world famous as an American architect, but remained an Englishman.¹⁷

11. Count Mordwinoff married another sister of Haviland's mother.

12. Louis Rusca, *Recueil des Dessins de Differens Batimens Construits a Saint Petersburg* (St. Petersburg, 1810).

13. See Louis Réau, *L'Art russe de Pierre le Grand à nos jours* (Paris: H. Laurens, 1922); Ettore Lo Gatto, *L'Opera del Genio Italiano All'Estero—Gli Artisti in Russia* (Roma: La libreria dello stato, 1934), 2 vols.; G. Lukomski, *Charles Cameron, 1740-1812* (London, 1943).

14. Admiral von Sonntag's brother George had married Mary Wright of Philadelphia, who after the death of her husband married John Haviland.

15. Detailed accounts of the building of this bank are in the Haviland Papers in the library of the University of Pennsylvania on loan from the Somerset Archaeological Society through the kindness of J. P. Collis, Archivist, Somerset Shire Hall, Taunton.

16. St. Andrews, now the Greek Orthodox Church, where Haviland was buried in 1852, is one of his most handsome neoclassical designs still standing.

17. Prison commissioners from all over the world visited the Eastern Penitentiary. Haviland complained that the fact that he remained an Englishman was held against him when he entered Federal competitions. See Haviland Papers, vol. 1, p. 177, letter to William Crawford.

The Architect of the Pennsylvania Fire Insurance Building*

RICHARD G. CARROTT University of California, Riverside

In an article entitled 'The Egyptian Style' appearing in the *Magazine of Art* in 1940, Frank J. Roos discusses a building on Independence Square in Philadelphia. In part he says:

One of the best examples in the style . . . built of white marble in 1838 when office buildings were domestic types, it is still used by the Pennsylvania Fire Insurance Company, for which it was designed. . . . The original building included only the right half of the structure, the rest having been added in 1900. . . . The exterior windows of the Philadelphia building show an understanding of the relative ancient proportions of the winged sun globe to the cavetto cornice—a finesse that Haviland understood better than T. U. Walter, and Mills better than T. S. Stewart.¹

He further states that the name of the architect does not appear among the records, which at the time was quite correct.

The original building of three bays would have had a cavetto cornice, nine normal windows, three of them with cavetto cornices and winged globes, one large window, two doors, and two palm-type Egyptian columns. The two doors appear to have been blocked up at different times in the history of the building.

In light of this it is interesting to note certain information to be found among the Haviland papers recently loaned to the University of Pennsylvania.² There is a copy of a letter bearing no date itself, but appearing in a journal and copy book between documents dated 29 June and 5 October 1838. In its entirety it reads:

In compliance with your request I have made the accompanying drawing for a suggested improvement [to] the front of your Insurance Offices. The Elevation represents the Basement or Office storey of marble, the superstructure of new-pressed Brickwork cemented and painted in imitation of marble. The roof upon examination was found to be [in] such a delapidated state that [it] is necessary to put on a new one, and the front Brickwork is also in a Bad condition. I would then suggest the propriety of raising the Height another storey and taking down and rebuilding the entire front and which would give to the whole a substantial and handsome appearance and attended will take more cost than patching—with more windows etc. as shown in the drawings. The cost is estimated at 2500\$ respectfully submitted by your obedient [servant]³

There is, on another page, an 'Estimate of Insurance Company's Improvement. Walnut Street between 5th and 6th. June 29th, 1838'.⁴ The above is the location of the Pennsylvania Fire Insurance Company, as well as the

* I would like to express my thanks to Harold Allen, 1423 West 17th Street, Chicago, Illinois, not only for his fine photographs but also for helpful suggestions on this problem.

1. Frank J. Roos, 'The Egyptian Style', *Magazine of Art* xxxiii (1940), 223.

2. Haviland Papers, ms, University of Pennsylvania.

3. Haviland Papers, Vol. III, 175.

4. Haviland Papers, Vol. III, 171.



Fig. 1. Pennsylvania Fire Insurance Company, 508-510 Walnut Street, Philadelphia. The right three bays were designed by John Haviland, 1838. The left three bays were designed by T. P. Chandler, 1900 (photo: Harold Allen).

Roos date for the original façade. The estimate is broken down into specific items, amounting to \$445, as follows: '9 windows, \$30 each; 3 scarabée, \$15 each; 1 window, \$50; 2 doors, \$40 each.' The 'scarabée' was more fully known as 'scarabée ailé', a Gallicized nineteenth-century conceit for a winged globe. All of these elements are to be found on the building today. There is also a more general item of \$1000 for a 'marble front'. These expenses would allow somewhat over \$1000 more for labor, etc.⁵ Further

5. Another document which might further help establish Haviland's authorship of the design is provided by a letter written to Dr. Roos by the Secretary of the Company, T. M. Patterson, on 24 April 1935. The information contained in the letter is of importance as far as this building is concerned in that the records it quotes from seem to be lost. At least they are not available at the Company today. The item of interest here is that on 11 January 1838 a committee was 'appointed to alter and repair the building. At this time the present front of the building was erected, in white marble, of the Egyptian Style of architecture. . . .' The list of the committee in charge of alterations is headed by Thomas Kittera. In the Haviland papers, on the page following the 'Estimate of Insurance Company's improvement', is a notation in pencil to the effect that the 'office de-

on in the journal is a list of bills recently rendered which includes one for a design of 'Insurance Company new front, \$15.00'.⁶

It may be proposed, therefore, that the architect of the Pennsylvania Fire Insurance Building, or at least of its most distinctive feature, the Egyptian façade of 1838, was John Haviland, the Egyptian Revival architect par excel-

sign for Thos. Kittera' had been completed (Vol. III, 172). Three pages later is the copy of Haviland's letter to the Insurance Company.

I wish to express my thanks to Dr. Roos for permission to quote from his letter.

6. Haviland Papers, Vol. III, 200.

lence. This has already been intimated as a possibility in the Roos article. The fact that two palmette columns and the entire front of white marble were not specifically mentioned in the estimate would not appear to negate this hypothesis for they were probably the result of changes in the original plan.

It is unfortunate that the reasons for the style, or indeed the style itself, were not mentioned. One only may note that it seemed desirable to give the building 'a *substantial* and handsome appearance' (italics are the author's). Could it be that the Egyptian style evoked a stability and timelessness, enduring qualities of symbolic value which would be of paramount importance to an insurance company's public image?



Fig. 2. Pennsylvania Fire Insurance Company. The three bays in the foreground are by Haviland (photo: Harold Allen).



Fig. 3. Pennsylvania Fire Insurance Company. Palm capitals, like those at Edfu, by Haviland (photo: Harold Allen).

LETTERS TO THE EDITOR

Sir:

For a long time, all through the research for my doctoral dissertation on Walter Burley Griffin (1873-1937) and other members of the Chicago School, I hesitated to use the enclosed material and even more to turn it over to the public. Now Wright's death has removed the obvious main objection—involving a great architect in a painful controversy during his final years.

The recent articles by David Gebhard and H. Allen Brooks, Jr., signify the increasing interest in Wright and the many associates, pupils, and colleagues with whom he worked during the Chicago years. George Elmslie (1871-1952) in the enclosed letter deals not only with facets of Wright's personality but more importantly with hitherto unknown aspects of his relationship with Sullivan. I believe that this letter is self-explanatory.

I am indebted to the courtesy of Mr. William L. Steele, Jr., AIA, Omaha, Nebraska, who discovered the Elmslie letter in the files of his late father and was immediately aware of its great historical importance. William L. Steele, Sr. (1875-1949), was a well-known architect who worked in Chicago and the Middle West during the first part of the twentieth century. One of his outstanding buildings, the Woodbury County Court House, Sioux City, Iowa (1915), was designed in collaboration with George Elmslie and William Gray Purcell. Steele later settled in Omaha, Nebraska, where he practiced architecture until his death.

I can think of no more worthy place than the *SAH Journal* in which to publish this material.

Mark L. Peisch
Columbia University

June 12, 1936.

Mr. Frank Lloyd Wright
Spring Green,
Wisconsin.

Dear Mr. Wright:

I read very belatedly with great interest your review of Professor Morrison's biography of Louis Sullivan, as it appeared in the Saturday review of December 14th.

There are a few errors, preconceptions and preoccupations of mind in your comment that may be duly stated, in the interest of Truth, if that element is of any importance to you. You are the judge of that.

You refer to the 'backwash' of the later work shown in the book and specifically attach my name to the old Bradley house in Madison. It may be said, much as you may prefer it otherwise, that the design conception was wholly Sullivan's. Professor Morrison attributes a bit too much to me in this one case. I made the working drawings and the detailed working out of the basic design even to his deep false wooden brackets which conceal and stultify the horizontal steel cantilevers that support the balconies. Sullivan threw up the job when building operations began because Charles R. Crane, whose daughter is Mrs. Bradley, refused to pay him money, not due or even nearly due. I was engaged by Mr. Crane to see the house finished at a weekly wage after I had left Mr. Sullivan. Later on Mr. Sullivan thanked me most sincerely for having done this for his old friend, Mr. Crane. Mr. Purcell and I did a lot of work for Mr. Crane

afterwards, as he did not care, after this episode to take on the Master, who doubtless realized the ineptitude of his own unbusinesslike attitude in this case as in others. When with him, I had to defend him, time and time again, and pacify his clients. I served him in his temporary weaknesses as well as I could and resolved more than one difficulty.

Sullivan threw up the big Cedar Rapids church, referred to by Morrison, for the same reason—the matter of remuneration. The architect who succeeded him, a Chicago Church 'expert', made a ghastly mess of the original design and the chairman of the committee wrote to me to inquire if I would please look things over and help them out. I naturally refused. However, he wrote that he was coming on to see me and I finally agreed, for Sullivan's sake, to spend some time in an endeavor to bring back some part of the original idea. I did this without compensation and in principle, at least, saved the situation from being a dreadful conglomeration. Sullivan never knew about it. If he had he would again have thanked me.

You also refer to the Owatonna Bank which you now class as one of his master works. Once in the nearly twenty years when you were not on speaking terms with him you classed it as a high wall with a hole in it. Some change in feeling? It may be said as I wrote you before, that not only were all the working drawings and every last detail of decoration, inside and out, mine but the main motif of the design as well. I suggested to him, as I also told you before, that one arch would be more impressive than the three on his design. He thought this over and drew a big arch thirty-six feet wide and said, 'George, is that what you want?' I also devised the brick counters with clear plate glass above and only grilles where the tellers were. That worried him and he sent my sketch to the owners for approval. They approved the system, which was quite new at the time. I hope this notation will clear your mind and keep the record straight, which is all I care for.

On the Schlesinger and Mayer Building he formed the window shapes in the upper stories, which were the characteristic element of the design. I did all the rest—all the ornamental work and also the design of the shape and the complete working out of the projecting curved corner, which was not on the original design.

On the Condict Building, which you class as a master work, he made the basic design to palm of the hand size but never touched the detailed working out of it.

For the last fifteen years I was with Sullivan, he left, and gladly, much for me to do. He trusted me and I had a great feeling of trust in him.

The work from 1910 and onward was done all by himself except for the services rendered by a very able young chap who came after me, Parker Berry, who deserves a vote of thanks.

I worked for Sullivan for ten years for half pay and acknowledged by him as such. It was his desire and clearly understood that when he passed on I was to succeed to his affairs. It was so noted in his will at that time. However, the end came and no business at hand or in sight. I had to leave. My very great affection for him induced me to stay as long as I did, even when friends for many years had urged me repeatedly to leave. I do not regret what I did but I lost many

years, as related to my own welfare, and now think that my contribution to his life was worthy of some regard, even from you, instead of the captious and snarling insult you offer me in your criticism. During these years I contributed at least fifteen thousand dollars to his budget that I could have earned elsewhere. Did anyone else do as much for him or defend him as much as I? I did more for him than you and all the rest put together, and if you were honest, instead of greedy for a posthumous honor, you would candidly admit it.

He explained his theory of ornament to you as you once said. He did to me also, but being in no sense as facile as yourself it took me a long time even creditably to draw it, to say nothing of organizing forms to suit myself. He looked over my efforts critically and judiciously and when he saw fresh interpretations and new shapes, he was greatly delighted. I never copied any of his motifs.

Kindly note and believe it or not, I have no personal interest whatsoever in making these comments; merely detailing events as they occurred and conditions as they existed. I have no desire to exploit myself at any ones expense, I was not bred that way. Facts interest me.

One day, in later years, I showed him a bank we had done on the Pier and Lintel basis. I never saw him more delighted and pleased. The owners of the Owatanna Bank preferred it to their own.

I was never untrue to Sullivan, not an hour in all the years I was with him. I happen to have first hand knowledge from the Master himself as to your behavior on your agreement with the firm. It is not a pleasant story for your friends to hear and need not be told by me. His vitriolic comments on your ways and means will remain unsaid.

I was loyal to you too. You have forgotten how often I went to Oak Park to do a bit of drawing for you.

I knew Sullivan in those twenty years of his mental maturity. You missed knowing him all those years and you missed a lot. It was pleasant to know of the renewal of your relationship and to note it in his diary. A friend in need is a friend indeed!

I gave Professor Morrison access to all the Sullivan material I had. Most of it I gave, later, to the Library in the Chicago Art Institute—drawings galore, drawings made in Boston and Paris as well as a great deal of unpublished literature. They now have the original manuscript of the 'Autobiography of an Idea', and many other treasures which I preserved. The drawings you have are doubtless contained in the well known sketch book. Precious indeed, but not to be compared with the material I was privileged to give.

All of the available Sullivan vital material and miscellanea were turned over to me at the desire of Max Dunning and George Nimmons and I did as well as I could to preserve them for posterity. Why did not you step in and look into these things yourself, in your role of newly assumed spiritual legatee? You did not care enough. These two men were very close to Sullivan at the end and very materially helped him but, being men, they said nothing about it. No telling the world at large here, of buying him a suit of clothes! We all contributed to his burial expenses.

You say Professor Morrison drew all his information from me. Paul Muller helped him probably as much as I did in his historical research and appreciation of characters in the scene he depicts. What a story Paul told me of his relations with you on the Larkin Building! It seemed perfectly all right for you to gyp this honest and splendid man and to try your damndest to discredit others for your own benefit.

Morrison is a fine fellow, as you would realize if you had met him. I have known him since first he thought of endeavoring to illuminate the pathway of Sullivan through the years. He and his wife called on you but you were away. He deeply regretted not having conversed with you regarding the Master. He traveled abroad the country in the interest of Sullivan and dug deeply, personally into all existing records to get the complete, if possible, story of his life, as crystal-

lized in building form and in the messages of his great pen as he set forth his incalculably vital philosophy. It was necessary to do all this and I think it was extremely well done. That Sullivan was a greater philosopher, prophet and teacher than an architect is indubitable, and the book brings that out very well, with its wealth of quotations. The gracious thing for you to have done would have been to assume the role of kindly mentor, and in simple language have pointed out with good humor and grace wherein the book did not meet with your conception of what it should be, instead of your insulting comment on it, on the author, and on myself. Professor Morrison did his own thinking. If he saw fit to dedicate his book to me, it was his own business. It was, in truth, the last thing I expected.

Why not, in the years of your great maturity, exhale a modicum of kindness to others, endeavoring to do their bit? No man can afford it so well as yourself. But alas, you are not endowed with so human an element, only with a curious quality of vanity, and a rather vulgar and childish egotism. You seem to have it in your mind that you yourself do your work, whereas the impulses are much deeper and more universal than the mere ego which you adore.

Mr. Adler—as to whose greatness, I cordially agree with you—once wrote a critical thesis on 'Form Follows Function'. In it he referred to an essay Sullivan had written previously as follows,—I quote from memory—"That very brilliant writer, Louis Sullivan, in an article on 'Form Follows Function' does not go far enough, in my opinion. He should have said that Function and Environment determine Form." Sullivan laughed, naturally, at his former partner's lack of understanding of the spirit involved in the simple slogan. Did Sullivan need to go to school to Adler? Hardly! They gave and took like all good partners, I suppose. Sullivan was born with his philosophy and lived with it and needed no tutoring from anybody.

Adler's daughter, by the way, is delighted with Morrison's book. She apparently did not feel that her father was belittled in the biography.

Perhaps you could write Sullivan's life, without exploiting yourself, and explain more fully the spirit or psyche that dominated it. I do not know. If you did it and were no more truthful, in parts, than you were in your own autobiography, it would be indeed sad. Perhaps you could divest yourself long enough of your pride in the greatness of your achievements to do so. I doubt if you will ever tell the truth of your years with him, and of the twenty years, that followed your exit in disgrace until you met him again.

You once said to me—"How long will it be before the world recognizes me as the Master and Sullivan as the man?" I make no comment.

You, of course, are a great genius, and no one knows this better than I. But I do bespeak entrance into your mind of the still, small voice of truth, of fair play, dignity, and high honor, and the exit of your strange claims of omniscience when you come to write on a great Master and an infinitely greater man than yourself.

Sincerely yours,
G. C. Elmslie

The following book review, referred to in the above letter of George Grant Elmslie, is reprinted from the 14 December 1935 issue of *The Saturday Review of Literature* with the kind permission of the publisher.

Louis Sullivan: Prophet of Modern Architecture. By Hugh Morrison. New York: W. W. Norton & Co. 1935. \$4.

Reviewed by Frank Lloyd Wright

The impending success of modern architecture has excited critics and incited them to look the gift-horse in the teeth. Mr. Morrison's book goes beyond other recent critics' post-mortems concerning modern architecture in drawing its information from a single person

(my understudy while 'serving my time' with Adler and Sullivan) and the critic dedicates his criticisms to that personal source.* Not much honor have I seen among gratuitous enlighteners of the public where modern architecture is concerned. I've lived long enough to see it through and see through it.

But it is only fair to say that the gathering together of Adler's and Sullivan's important work in the beginning of our new architecture is useful and, but for reducing the grand old chief—Adler—to an appendix, the inclusion of a building neither ever saw (the Heath House), and many neither of them cared enough about to even look at—that part of the work is well done.

If only these gratuitous critics would confine themselves to effects they can see with their own eyes and would steer clear of causes they would have a better chance to be honest with themselves and so with others. When Morrison makes selections and infers he goes to pieces badly. His judgments are exactly wrong. The case against eclecticism is well presented but the real Louis Sullivan in his relation to time, place, and man is thrown entirely away to make a case for him as the forerunner of a functionalism for which neither then—no, nor now, would he have ever had more than a curse. His biographer foolishly takes pains to defend him against the very thing that he was and that no critic has yet been able to see as his true greatness.

'Form follows Function'? Has it occurred to no one, then, that Dankmar Adler, not Louis Sullivan, deserves the credit for that dogma? It was Adler's contribution to his young partner when he was teaching him practically all the young man knew about architecture below the belt? As an architect Louis Sullivan went to school, not to the Beaux Arts, but to Dankmar Adler. Out of his association with Adler came Sullivan's whole sense of building as a functional experience in Function.

Morrison should have appended Adler's paper on 'The Influence of Steel Construction and Plate Glass on the Development of a Modern Style', etc., etc., and moved the chief up as teacher of the young poet and artist whose efflorescence he adored because it went beyond him to a realm he coveted.

A just biographer should know that to honor Adler is not to dishonor Sullivan. To underrate the chief, Adler, is to lose Sullivan as Morrison has lost him. Morrison's Sullivan is more Adler than Sullivan. None seems to see the master as he was and is so plainly written in his works. He put into my hands just before he died his own complete collection (hundreds) of the drawings (he had dated them) that represented him to himself at his best and said—'Frank, this to you for you'll be writing about my work some day.' And 'some day' I will give the world the figure of the great creative artist as he was and as he saw himself.

Sullivan is so much greater than his post-mortems would have him. He is essentially a lyric poet-philosopher interested in the sensuous experience of expressing inner rhythms, evolving a language of his own—his ornament—in which to utter himself: unique among mankind. The Wainwright, the Guarantee, and the Bayard buildings, the Getty Tomb and the Golden Door will tell. But what crass impertinence to put Richardson's influence upon Sullivan where ornament is concerned just because of similarity in the edges of certain leaves which if all children were to draw they would draw similarly: specious inference worthy of R. Hitchcock at his merriest and maddest.

I can explain, for Mr. Morrison, the 'mystery' of the oriels of the Stock Exchange Building. The 'oriels' are nine bays projecting about two and one half feet over the sidewalk below them; projecting on nine floor levels. Calculate the floor space stolen, by ordinance, from the street and see 'why' they were there! Then consider that such bays were preferred by tenants because they could look up and down the street without sticking their heads out of the windows, etc.

Bah! Sullivan's decline was not as Morrison says—due to the fact

that his contemporaries did not recognize his talents, but more because they did and built a defense wall of gossip around him, to isolate him from their own possible clientèle which meant, to them, these United States.

The later work shown in the book is backwash or, as in the case of the Bradley House—Elmslie. The Getty Tomb, Wainwright, Guarantee and Condict and Schesinger-Meyer buildings were unadulterated Sullivan—his best buildings. The Condict (Bayard) building he loved best. It was nearest to his desire. Among the later ones, the Owatoma and Columbus Banks are the only works in which the master shows himself.

When Morrison says there is little or nothing known of the late years of Louis Sullivan's life he destroys the great significance of the tragedy of a great life in its helpless relation to the time in which and to the people among whom Louis Sullivan, the great creative artist, lived. And this is biography? No. No more biography than good criticism!

Sir:

Professor Collins' belief, expressed in his review of my book *Pier Luigi Nervi* (George Braziller, N. Y., 1960) in the December 1960 *Journal*, that 'engineering' is never 'architecture', exposes a schism in critical interpretive attitudes so wide, so deep, and so important, that it is almost beyond argument.

One either perceives that nineteenth- and twentieth-century engineering advances are directly responsible for an unprecedented and important vocabulary of contemporary architectural forms, or one adheres to the circa 1850 Ruskinian definition of architecture as the embellishment of structure, with the insistently artificial division between the two that this implies. As suitable as this may have been for some of the exuberant creations of the time, it has little pertinence for today's work. (Nor, to be fair to Giedion, did he 'confuse' architecture and engineering, as Professor Collins surprisingly suggests; he successfully pointed out their changing relationship in an industrial age.)

To me, and to many others, the importance of Nervi's revolutionary engineering is that it is one of the most meaningful architectural break-throughs of the twentieth century. It has its obvious strong points, and its equally obvious limitations. But its undeniable contribution is the development of new structural-aesthetic forms—which rank as architectural expression. As the critic Aline Saarinen has put it (she is also a trained historian): 'When a conscious sense of created form and high expressive purpose gives engineering an added dimension in grandeur, nobility and beauty, it crosses the line between engineering and the art of architecture.' Today's work, she adds perceptively, 'strives more closely for an actual identity between what Geoffrey Scott calls "constructive integrity in fact" and "constructive vividness in appearance" than has any other age—including the Gothic.'

I sincerely believe that the historian must approach his task with this broad, basic, elementary understanding of how primarily structural the art of architecture really is, or he will soon be involved in superficial exercises of 'façadism', rather than a valid analysis of his subject. The architect has a traditional freedom to interpret and express structure in a variety of creative ways—as the history of architecture testifies. In some ages, engineering is relatively static, and design develops imaginative stylistic departures from its structural theme. In others, like our own, engineering makes startling advances, and takes on a primary aesthetic importance. It is the historian's responsibility to recognize, interpret, evaluate, and move with these trends, not force them into pedantic pigeonholes that do more to falsify the historic picture than to record it properly.

*The book is dedicated to George Grant Elmslie.

That Professor Collins still accepts the older viewpoint is obvious in his book, *Concrete, the Vision of a New Architecture* (New York: Horizon Press, 1959). In a work of admirable scholarship he imposes on himself this self-defeating limitation which leads him to a regrettable dead-end, in spite of his competent study of Perret, and fails to give us any vision of the 'new architecture' at all. Not to recognize that pure engineering (sometimes in the hands of architects, and sometimes in the hands of engineers) has been the instrument of expansion and redefinition of architecture in the past century, is to close the door on some of the most significant work of our time, and one of the most interesting chapters of architectural history. In addition, it ignores the contemporary architect's own philosophy and understanding of his art.

As for the question of my attitude toward Sullivan, which Professor Collins raises, this clearly illustrates the fact that we speak hopelessly different languages. Because I view Nervi's highly personalized, sensitive structure as art (and in the case of the Florence Stadium, feel that it surpasses the inferior character of certain badly related, falsely applied, unpardonably mediocre details) he suggests, *a priori*, that I must admire only the anonymous skeleton of Sullivan's buildings, and not their ornament. I quote Montgomery Schuyler's still-brilliant and accurate analysis of Sullivan's Bayard Building in 1899, based on the structural primacy of his solution: 'This is an attempt, and a very serious attempt, to found the architecture of a tall building upon the facts of the case. The actual structure is left, or rather, is helped, to tell its own story. This is the thing itself. . . . Everywhere the drapery of baked clay is a mere wrapping, which clings so closely to the frame as to reveal it, and even to emphasize it.' And in this superb synthesis of ornament and structural form lies the greatness of the architecture.

The problem of definition that Professor Collins raises is indeed a serious one, as he suggests. I am as concerned as he is for the proper range and scope of architectural studies, and deplore any doctrinaire interpretation that cuts off legitimate paths of critical and scholarly investigation.

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Sir:

Robert Branner's interesting article in the October 1960 issue suffers from a number of misconceptions that might—it seems to an architect—have been avoided, together with at least one downright error.

Mr. Branner apparently did not notice that Brutails' third-point arch in fig. 1 is actually a fourth-point in his own nomenclature.

Fig. 2 is captioned as being redrawn from p. 40 c-2 of Villard's sketchbook. Actually it is an entirely different diagram. It shows the vertical FK as shorter than the diagonal FI—a condition the exact opposite of Villard's diagram, and one that would be of no use whatever in designing a keystone.

Further, the description of the construction of this diagram reads '... any three equal units are marked off on the radius passing through the peak of the soffit (FI) ...'. Actually, as Villard drew it, this line through the peak of the soffit is not a radius, but a perpendicular. The description goes on to say, '... and another unit of the same size (IK) is laid out perpendicular to the vertical axis ...'.

It must be noted that this, strictly speaking, is a geometric impossibility. It can only be performed with a marked square as shown in fig. 2 herewith.

He continues, 'But the length and position of the vertical axis are the unknown quantities ...'. This is certainly not the case with Villard's original sketches where—including those later erased—he repeats his instructions three times.

Note again that the vertical is given as $2\sqrt{2}$ and the radius as 3. This is the exact opposite to both Villard and the facts of the matter.

Villard distinctly shows the vertical as the basis from which to measure. This seems to confirm the idea that the pointed arch made it possible for arcade arches to be raised to a given height in the same manner as vaults. The principal difference would be that in a vault it is the height of the intrados that is significant while in an arcade it would be the extrados.

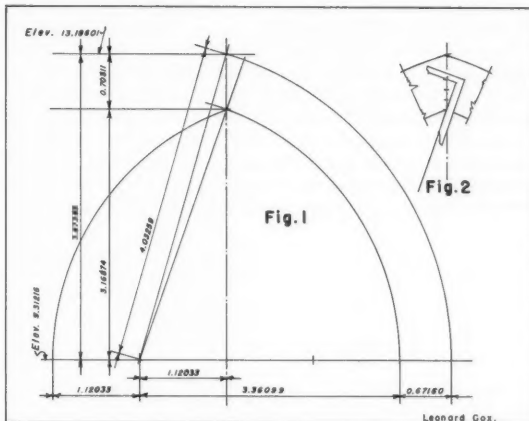


Fig. 1 herewith, offers a case in point. This is a diagram of the nave arcade arches in Chartres. All but two of these arches are of different widths, but a mean can be taken. The height of the outer apex was first determined as well as the spring line. A third-point arch produces the result shown.¹ Recent measurements for which I am indebted to Professor Ernst Levy of Brooklyn College give the actual height of the peak as 13.19 m. and the depth of the keystone as 70 cm. No measurement is available for the height of the spring line, but it obviously can be wrong by only a negligible amount.

The width of the arch ring has here been computed. Using Villard's diagram it would be geometrically determined—not calculated—as 0.70511×0.9428 or 0.66478 m. This is 0.00682 m. too little—a negligible difference and an earnest of the value of the method.²

Fig. 1 and fig. 2 have been juxtaposed here to show that for this particular operation the spiral is not needed.

In the discussion of the spirals it would have clarified the exposition a bit to have noted that the successive quantities of $\sqrt{3}$, $2\sqrt{2}$, etc., come alternately on opposite sides of the vertical axis.

Mr. Branner is most definitely under a misapprehension when he states '... as the number of divisions across the base increases, the spiral accommodates only the lower arches.' The exact opposite is the case. Starting with the arch generated by the equilateral triangle, the arches get lower and lower as the base line is further and further subdivided and the centers move closer to its midpoint. When the limit—the midpoint—is reached the arch becomes a semicircle—the lowest of this type of arch. Oddly he appears to realize this and contradict himself in footnote 11.

This note, together with footnote 10 immediately preceding, presupposes that the short side of the triangle of measure must always be one. There is no real foundation for this belief unless it is assumed that the nomograph was drawn for the sole purpose of assisting the design of the keystones of a limited series of arches.

1. See below for discussion of the arches of the vaults.

2. Were the arch ring determined first, the height of the keystone would become 0.67160×1.06067 or 0.71235 m. This is 0.00724 m. in excess—again a trivial difference.

Fig. 5 is Spiral B. At first sight this looks a great deal like experiment and it is difficult to believe that some of these quantities were of any use. That they could in fact be very useful will appear.

Spiral C has not been drawn since it is precisely the same as Spiral A and Villard's spiral with the addition of an extra semicircle. Why the addition?

There is a good answer if it be assumed that these spirals were used as nomographs to produce graphically the successive square roots or even multiples thereof. Thus Villard's spiral and Spiral A give the roots of 2 through 15 omitting those of 10, 13, and 14. Spiral C adds those of 10 and 13, though 14 is still missing. Spiral B gives square root of 14, but not of 10 or 13.

If the Villard, Spiral A, Spiral C type is further expanded more and more square roots appear and a pattern is generated that allows one to extrapolate and say what square roots will show up in any given turn.⁴

Of the three Chartres spirals Spiral B is the one that can be used to facilitate laying out the voussoirs of the arches. The nave arcades of Chartres, as an example, are shown by Lassus with 8 voussoirs between the baseline and the key. Now the angle subtended by either side of a third-point arch is $70^{\circ} 31' 43.6104''$. The problem then is to divide this angle into approximately $8\frac{1}{2}$ parts—since the half of the keystone is approximately half of a voussoir.

If Spiral B be extended another semicircle, the next figure after $4\sqrt{6}$ ($\sqrt{96}$) will be $8\sqrt{3}$ ($\sqrt{192}$). This is the cosine of the angle of $8^{\circ} 11' 41.7973''$ where the hypotenuse of the triangle is 14 and the short side 2.

Mark a square at 2 units and place on the spiral. Mark the other arm at the $\sqrt{192}$ point. Reverse the square and place it along the baseline of the arch with the $\sqrt{192}$ at the arch center. A line from this center prolonged through the 2 mark will cut off the desired voussoir. Eight such voussoirs add up to $65^{\circ} 33' 34.3784''$. The remainder is thus $4^{\circ} 58' 09.2320''$.⁵

A similar operation seems to be possible with both the transverse members and the diagonals of the vault.

The diagonal members appear to be sixth-point arches while the transversals are fourth-point slightly altered to give them the same radius as the diagonals.

Taking the transversals first: their sides subtend an angle of $74^{\circ} 11' 16.1588''$ and they appear to have 23 voussoirs between baseline and key.

Expand Spiral B by a semicircle as before and further expand by another full circle. Then the second figure after $3\sqrt{11}$ will be $\sqrt{323}$. This yields the cosine of $3^{\circ} 11' 05.3818''$. 23 times this is $73^{\circ} 15' 03.7814''$, leaving a remainder for the keystone of $1^{\circ} 56' 12.3774''$.

Turning to the diagonals, the subtended angle of a sixth-point arch is $80^{\circ} 24' 21.3541''$. Since the radii are the same as those of the transversals the same voussoir angle of $3^{\circ} 11' 05.3818''$ will apply. This time, however, it is multiplied by 24 giving a sum of $76^{\circ} 26' 09.1632''$. This leaves a remainder of $3^{\circ} 58' 12.1909''$. At first this seems too big, but it must be remembered that these arches meet at a *clef-de-voute*.

To check: the sine of $3^{\circ} 58' 12.1909''$ is 0.069235. This multiplied by the radius of 9.5647608 m. gives 0.662216 for the half width of the key or a total of 1.3244 m. This is just about what it scales on a drawing.

It is obvious that this method of layout is simple, handy, and a notable space saver.

4. Spiral B is omitted because its peculiar construction permits only even numbers as successive radii.

5. If, as some drawings show, there were only 7 voussoirs the proper quantity $2\sqrt{35}$ ($\sqrt{140}$) can be taken from the left side of Spiral B. In this case the individual angle is $9^{\circ} 35' 30.8894''$. Seven times this is $67^{\circ} 08' 56.2958''$, leaving a remainder of $3^{\circ} 22' 27.3146''$ for the key.

The great objection to all this, of course, is that voiced by Mr. Branner when he wonders '... how the Gothic mason, generally considered to be ignorant of more than the simplest mathematical calculations, came to use the system.'

The misapprehension here is in the use of the word 'calculation'. One of the first things an apprentice learns about the steel square is its use in laying out the regular polygons within a circle. Thus 8 on one arm and 11 on the other are laid along a baseline much as in fig. 2 above and there is created the angle between that baseline and a regular pentagon standing on a point.⁶ This construction is more accurate than any except the strictly Euclidean.

A similar use of 5 and 17 will lead to the layout of a regular polygon of 11 sides—such as the West window in the eleventh-century cathedral of Troia. There is, of course, no Euclidean construction for this.

It is extremely unlikely that any one of the generations of 'mechanics' that have used this method ever took the trouble to ask how this was calculated—unless he was very anxious for rapid advancement.

So with the mason 'mechanic' of mediaeval days. As a matter of fact he didn't even have to know how to use a square this way. Here if ever was the occasion for the '*Doctor Lathomorum*', the '*maitre après Dieu des ouvrages de pierre*',⁸ to draw the spiral, mark the square, and laying it on the stone instruct the cutter with the famous '*Par cy me le taille*'.

Perhaps it wasn't done this way. Certainly the unknown architect of the tomb of St. Ouen appears to be holding a primitive sort of protractor.

But however he performed the comparatively simple operations here discussed the architect, master mason—call him what you will—who laid out the *tas-de-charge* for the Gothic vault was certainly a past master of empirical geometry.

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'Nag's Head', Coral Bay,
St. John, U.S. Virgin Islands

6. See H. H. Siegle, *The Steel Square* (Wilmette, Illinois, 1954).

7. This word is not used in any invidious sense, but with the meaning that it had up to some fifty years ago when it was used to distinguish journeymen in any of the building trades from foremen, superintendents, and the 'archytek'.

8. Pierre du Colombier, *Les Chantiers des Cathédrales* (Paris, 1953).

Sir:

It is gratifying to find that Colonel Cox concurs with my suggestion that the unannotated spiral in the Villard de Honnecourt manuscript was intended to serve in the layout of the various keystones shown in the adjacent diagrams. If the relationship is indeed a valid one, then we may be a small step closer to understanding the actual methods of thirteenth-century construction, and perhaps also a step further away from the methods all too frequently proposed in modern times, which often seem to be the result of self-amusement and sometimes even of self-puzzlement.

According to the Colonel, my 'downright error' was in placing the $3:1:\sqrt{2}$ triangle with the long side on the radius of the arch, whereas it should have been placed with the long side on the vertical axis and the next longest one on the radius. But this makes no difference at all in the angle, which remains the same and which alone, it seems to me, is fundamental to this procedure of keystone layout. In defense of the placement I used, I must point out that the diagram in the manuscript is really ambiguous as to which line represents the vertical axis; and that the single mark to the right in p. 40 c seems farther from the soffit than the uppermost of the three

marks to the left, contrary to the Colonel's statement in his third paragraph. Page 40 *d* is even less clear, for both trapezoids are nearly equal in size, one mark has been left off, and the others are poorly gauged. But these are minor points. The Colonel's placement would also work and I am glad he has brought it to the attention of the public. It remains an alternative, however, less likely in p. 40 *d* than in 40 *c*.

More important is the Colonel's attempt to make what I should call an 'organic' system out of the procedure, in which all the steps and all the dimensions are inalterably related. In this respect I think he is definitely in error. If I follow him correctly in his calculations for the main arcades at Chartres, he means that the marks on what he considers to be the vertical axis of the keystone (three for the third-point arch, five for the fifth-point) also indicate its total height and, inescapably, determine the thickness of the voussoirs; that is to say, the thickness of the arch is determined by the length of the radius and by the type of arch to be constructed. All the rest of his points flow from this assumption, and I must leave the question of their validity to those willing to work them out.

Unlike the Colonel, I do not have the advantage of working with Professor Levy's measurements of Chartres. But three observations can be made from the section of the Cathedral drawn by Lassus: (1) the bays vary in width (see also L. Grodecki in *Bulletin monumental* CXVI (1958), 106-109, with bibliography), yet (2) the main

arcades all rise to the same height, and (3) the voussoirs of all the main arcades seem to have the same thickness. Despite the absence of exact, detailed drawings, however, there are only two possibilities that can be deduced from the foregoing: either all the radii of all the main arches have the same length, or they do not. If they do, then none of the systems, whether third-point, fourth-point, or fifth-point, could be employed in all the bays without considerable adjustment, namely, the shifting of the centers along the baselines; and if the centers were shifted from the standard positions of the 'point system', then the angles of the keystones would be altered and the spiral would no longer serve to determine them geometrically. If, on the other hand, the radii do not have the same length in every bay, and the 'point system' were used in the manner suggested by the Colonel, then the voussoirs would vary in thickness. In either case, Colonel Cox's explanation does not seem valid.

To sum up: it seems to me that the purpose of the diagram in the Villard manuscript was quite simply to determine the angle needed to make the keystone for a regular, standard arch, and nothing more; and that whether the figure was drawn on the perpendicular or on the radius of the arch, was incidental. This was undoubtedly but one among many procedures serving the same end, and it would seem to be poor method to attempt to make it universal.

Robert Branner
Columbia University

BOOKS

Earl E. Rosenthal, *The Cathedral of Granada. A Study in the Spanish Renaissance* (Princeton University Press: 1961), xiv + 235 pp., 127 figs., 10 text figs. \$20.00.

The author presents Diego de Siloe's classicizing design for Granada Cathedral as a Renaissance version of the Holy Sepulcher in Jerusalem. The monograph has three main sections, each about fifty pages long, followed by about fifty pages of newly published documents. It is a substantial study with a serious claim upon the attention of everyone interested in Renaissance architectural symbolism, in addition to its special value for students of Spanish art.

The first part, The Project of 1528, reconstructs Siloe's design, by defining not only the limitations imposed in early wall foundations upon Siloe, but also by identifying the modifications which later generations introduced. Such were the 'Gothic' nave vaults built in the seventeenth century. Rosenthal believes that these cross-rib vaults departed from Siloe's putative first intention, interpreted by Rosenthal as having been to build coffered or 'parallel-rib' vaults, like those in the curving bays of the ambulatory.

Part II, The 'Roman Style', analyzes Siloe's many ways of following ancient Roman models. According to Rosenthal, Siloe 'gave an unusually clear and well-founded idea of the . . . "good architecture" of the Romans by a master of that style' (p. 106). In the course of this section, and in pursuit of his objective of proving the unadulterated classicism of Siloe's project, Rosenthal gives several pages to the exorcism of such 'Gothic phantoms' as he believes to have deformed the appreciation of the cathedral by 'style critics'.

A third section, The Program, treats the iconographical aspects and the imagery of the cathedral. Rosenthal proposes the Holy Sepulcher as the 'antetype' of this cathedral which so successfully reversed the ancient and restrictive traditions of Spanish liturgy and spatial arrangement, in order to express the tendencies of the moment in Spanish humanism under the influence of Erasmus, whose ascendancy at the court of Charles V was at its height in 1528 (p. 131).

An appendix presents the transcripts of 263 documents (248 published for the first time), but we are given no idea of its degree of selectivity or of the scope and abundance of the cathedral archives, other than that the present selection comes from the capitial records and the bookkeeping accounts of the construction.

The title promises more than the book contains. We are told only about the Siloe design, about its ancient and Italian antecedents, and about its iconography and imagery. There is no discussion of the significance of this work in Siloe's style; little is said about related cathedrals at Málaga and Jaén. Cadiz cathedral, the eighteenth-century descendant of Granada cathedral, is never mentioned. Nor are we given any clue as to the position of Granada cathedral in Plateresque architecture, or in Siloe's work, or in relation to the continuing traditions of Spanish architectural practice. The author restricts his attention to Siloe's design of 1528 and the model completed by 1532 but lost today. He does not examine Siloe's further artistic development, nor does he admit the possibility that Siloe changed his mind about the cathedral during the thirty-five years between 1528 and his death in 1563, when he was in charge of the work and presumably continuing to alter its detailed conduct.

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For example, the author greatly extends his efforts to absolve Siloe from any intention of using 'Gothic' rib vaults in the cathedral nave and transept. But he does not mention the fact that Siloe used cross-rib vaults in 1536 over the nave of the Salvador church in Ubeda (completed in 1559). Other naves by Siloe with cross-rib vaulting are in parish churches at Iznalloz (designed by Siloe in 1549 and built by Juan de Maeda 1569-1574), Montefrío (designed 1543), and Illora. These and others enumerated by M. Gómez-Moreno make it likely that cross-rib vaults were Siloe's standard practice, especially over large, high spans, yet Rosenthal mentions none of these cases, preferring to regard them as alien to the master's style (p. 93: 'Relieved of responsibility for the cross-rib vaults of the Granada nave, Siloe gains increased stature as a Renaissance designer, and his cathedral becomes more convincingly a project in the Roman style').

The three questions which concern the author are so rigidly framed and pursued to their answers, that he allowed himself no occasion to ask a number of questions which nevertheless occupy the reader's attention after he finishes Rosenthal's chapters. Thus the section describing the competition of 1577 to find a successor to Siloe who would execute his designs with the fidelity required by the cathedral chapter, is entitled Siloe's Faithful Followers. But we are told nothing about the earlier work and artistic affiliations of the three men admitted to the competition, even though such matters bear closely upon the interesting problem of the chapter's presumed efforts to retain intact a design fifty years old. ('There is reason to believe that most of the construction completed during the half century following the death of Siloe was faithful to the essential features of his original drawings and his detailed model', p. 39.)

I believe it unlikely that Siloe remained static for thirty-five years. Surely he changed, and surely he continued to carry the chapter with him in these changes. But Rosenthal insists upon the primacy and integrity of the 1528 design, thus putting both the chapter and Siloe's successors into improbable positions. It is more likely that the three men admitted to the competition of 1577 had only to pick up the lapse since Siloe's death in 1563. Lázaro de Velasco, the translator of Vitruvius, was 'faithful' enough to satisfy the canons. Francisco del Castillo had lived for nine years in Italy, three of them in the service of Pope Julius III, and his works at Almansa and Martos are close to the Mannerist taste of Serlio and Vignola. Juan de Orea, the third competitor, was Pedro de Machuca's son-in-law, and his previous work at Almería cathedral (1550-1573) reflects Machuca's style more than Siloe's, as we see in the second story he probably built on the tower of Granada cathedral. The author promises an article on the competition (p. 29), but these particulars were immediately relevant in the present book to the question of change in the design.

The impression left by the book is as if Siloe had little connection with Spain; as if Granada cathedral were only incidentally related to other Spanish edifices, having its true relation more with Roman imperial and Italian buildings than with anything in Spain; and as if Siloe's other works were of little or no interest, other than to furnish an occasional support to the thesis in progress.

In general, the author's knowledge of the sources and personalities of *quattrocento* architecture is impressive, and he has worked out with care the web of connections between Siloe and the Italian practice of his day.

Part III in particular captures the reader's attention, as the author brings out one facet after another in the complex meaning of the cathedral design. His proofs of the relationship to the Holy Sepulcher are convincing. This origin for the impressive collocation of rotunda and five-aisled nave is supported by excellent illustrations, and by a careful study of other possibilities of interpretation.

GEORGE KUBLER
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Gio Ponti, *In Praise of Architecture*, translated by Giuseppe-pina and Mario Salvadori, preface by Mario Salvadori (New York: F. W. Dodge Corp., 1960), xii+270 pp., 16 pls. \$6.95.

This book contains the distilled wisdom of an immensely productive artist now in his middle sixties. In it he writes, often wittily, of all the arts, life, and history. The architect will find some exciting ideas, the historian a number of *aperçus* on Greek temples, St. Peter's, and modern Milan, the young student will find lofty ideals persuasively presented. For architectural historians an important aspect of this book is what it says about the nature of architecture in 1960 as it appears to a thoughtful Italian architect with an international practice. Since Ponti writes in a clipped aphoristic style it is possible to review some of his beliefs by compiling his own words. 'Architecture is the concrete result of the human activities that it both interprets and expresses.' Of universities: 'their beauty is part of their educational function.' When architecture is pure 'it is as pure as a crystal—magic, closed, exclusive, autonomous . . . definitive. Whatever can move, for example a ship, is not architecture. . . . Although a machine may appear perfect and without fault, it is always surpassed by a subsequent "more perfect" machine. Engineering is a progressive activity.' An architectural work of art is always something 'finite that cannot be changed in any way. Engineering is eclectic; architecture is not. Engineering creates prototypes; architecture creates monotypes. We can give up a machine when a better one is made, but we never give up a work of art because its values are perpetual and universal. Even an architecture reduced to ruins is still poetically stimulating to our spirit, for our spirit can reconstruct it; the ruin functions perfectly and completely at an artistic level.' All this is 'classical' rather than 'modern'. So, too, is the belief in several eternal and very broad principles which are over and above 'practical functionality' (which should be taken for granted in every sensible architectural work . . .); formal and structural invention, essentiality, representativeness, expressiveness, illusiveness and perpetuity.

There are passages about the social responsibility of the architect which seem to come from an earlier phase of his development, and passages about learning with the hands and of the beauty of materials which echo Ruskin and Morris. He does not approve of the architect who imposes on his clients his aesthetic feelings: 'he should fall in love with the owners.' Nor should he be afraid of limited means, 'the more limited he is, the less free to operate, the better his architecture.' Elsewhere he says the architect should create fantastic things.

On more detailed matters Ponti lays down some personal rules such as that 'a floor should have three dimensions; staircases should play; an all white room is a coffer not an architecture; luxurious bathrooms are mistakes in taste; a room should be so furnished that however its furniture is shifted around, it will still look beautiful and orderly, that is alive.'

Consistent with his emphasis on the architect as an artist, he proclaims 'If formulas, if the "golden section" or the like, had any value, if in other words there existed a definite set of rules capable of telling us how to proportion a work of art and of architecture, then I and all other architects would always design well, equally well, for fifty years in a row, all of us.'

His words on city planning are a clear statement of an ideal, one which may eventually be more widely accepted, although the obstacles seem to be only slightly less immovable now than when they defeated Sir Christopher Wren's plan for London. 'One must no longer insist on the alignment of façades on streets . . . one should prescribe only a total volume not to be exceeded not fixed volumes nor volumetric forms but free-standing buildings, with finite and expressive forms, with freely created spaces in the building and around

it. We must disengage buildings from the streets. Buildings should rise in isolation, perfectly formed, self-oriented and rationally planned. But towers should be permitted only if they give up space for traffic and parking. Let us free ourselves from the street and the lot.'

The trite adage 'form follows function' is radically reversed. 'Functionality is independent of form. . . . Even an ugly car can run. Those with a Pinin Farina body do not run better; they just look better. What is right, what is wonderful, what is significant is that Pinin Farina does not reach this beauty through surveys, statistics, research on public taste (which has nothing to do with good taste anyway). He reaches it only by his happy intuition, his attitude toward essentiality as an artist. The reconstruction of the original purity of the relation between form and function does not come from functionality, or from a functional necessity. It originates from our esthetic needs, our intellectual and cultural needs, and I almost dare say, from our moral needs, which make it impossible for us to accept dressed up insincere forms.'

Ponti has something to say about architecture in its current relation to the other arts, a relationship which is unsatisfactory to most of us. He says 'architecture is the true art of our time. The other arts like painting and sculpture, have stopped participating fully in the life of society and representing it. Even their most noble expressions have become objects of collection or speculation, they participate in the life of society only passively. Contemporary art is not composed on one style but is a coexistence of expressions that do not communicate with each other. . . . In the present passion for industrial design we even see it [technology] subsuming art and esthetics.'

To the question where is architecture going, Ponti replies 'from heaviness to lightness, from the opaque to the transparent, from the corruptible to the incorruptible [re materials] from conglomeration to unity.' And he claims, in spite of his intimate knowledge of our recent achievements, that architecture makes its progress in poor but civilized countries—the only ones that spend money on architecture.

It can be seen from these extensive quotations, which do not touch on many of the topics of interest to Ponti such as light, perspective, roofs, religion, and numerous individual painters and architects, that the range is wide and the approach free-wheeling with an underlying current of classical idealism and optimism. This is a far cry from the radicalism of Reyner Banham and the neo-technologists. The tone, as one might expect from an Italian of Ponti's generation and temperament, is idealistic, optimistic, and basically conservative. He is not deeply troubled by the alleged irrelevance of art in modern life, peripheral as some think it has become, nor with closer relationships with science. He considers that art and technology belong to separate value systems. As an illustration of this more mystic point of view Ponti groups architects with priests, teachers, and doctors, but not with engineers, biologists, or psychologists which is where C. P. Snow puts them. Ponti puts his faith in intuition. This is implied in the Italian title of the book *Amate l'architettura* expressive of a Latin attitude which the American publishers presumably felt might not go down as well with Anglo-Saxon readers as the more austere *In Praise of Architecture*.

CARROLL L. V. MEEKS
Yale University

John L. Cotter, *Archeological Excavations at Jamestown Colonial National Historical Park and Jamestown National Historic Site, Virginia* (Washington: U. S. Department of the Interior, National Park Service, 1958), 299 pp., 92

pls., 29 figs. \$2.75. Archeological Research Series. Number four.

The publication of this noteworthy volume, presenting results of investigations of recent years at Jamestown, is another landmark in the study of that important site. The volume provides information not previously published, particularly on the many surviving physical remains excavated and studied by the National Park Service, especially from 1954 to 1956 and, in summary form, the results of previous work by J. C. Harrington and others. It does not attempt to deal with the general history of the site through a review of the documents, or directly with the artifacts recovered in association (a vast and complicated topic), though inventories of the latter are provided, arranged by excavation units.

The scope of the report is indicated by the fact that it presents new data on the several churches and burial grounds, the country houses, more modest dwellings, and other buildings, and on related matters such as the natural environment in which the community was established, as well as an account of the unsuccessful search for the site of the first fort, of 1607. The size of the task undertaken by Cotter is suggested by the many architectural and other specialized research reports still in manuscript, which are listed with other references supporting his account. Abundant materials for further study are provided by this volume and the sources upon which it is based, particularly on the architectural history of the seaboard settlements and on the social history of Virginia during the seventeenth and eighteenth centuries.

It has been observed that there have been two kinds of books about American Colonial architecture—histories and books of record. This volume, dealing primarily with the architectural remains of Jamestown, is essentially a book of record, providing new data upon which historical analyses, comparisons, and future syntheses will in large part depend. The work is, however, a history of Jamestown architecture as well, inasmuch as it deals with architectural styles and construction methods followed, tracing localized developments during the seventeenth century, and pointing out historic changes. It is obviously too early, as yet, to expect exhaustive commentaries on the new data, which will, it is hoped, eventually be provided by architectural historians, when the new evidence can be fitted to the contemporary context of surviving documents and comparable remains still surviving elsewhere for investigation.

Further new research is suggested by these Jamestown materials—into community plan, the organization and maintenance of such towns, historical changes in material and nonmaterial culture of the settlement, and similar topics in economic, social, and political history. It is to be hoped that historians can redouble their efforts in searching out contemporary documentation bearing on these and other topics, in view of the fact that archaeological evidence, though intrinsically significant (as is emphasized by Cotter), frequently needs the elucidation to be found only in long-unused records. Archaeologists working at such sites, on their part, must redouble their efforts to familiarize themselves with, and to utilize to the fullest, surviving pertinent evidence, of whatever kind. The research thus far accomplished at the site of Jamestown, and now in part further published, has had an auspicious beginning despite minor setbacks. It is not to be supposed that the sources of new knowledge of this or other such sites have been exhausted; quite the contrary.

For those unfamiliar with the details of investigations at the site of Jamestown thus far, the present report is a major supplement to *New Discoveries at Jamestown*, published in 1957 by Cotter and J. Paul Hudson. That briefer account, more general but no less useful, provides an admirable introduction to the review of detailed evidence now at hand. It is appropriate that the excellent field work accomplished at this site is now so well published.

G. HUBERT SMITH
Smithsonian Institution

T. S. R. Boase, *English Art 1800-1870* (New York: Oxford University Press, 1959), 352 pp., 96 pls., 12 figs. \$11.50. Oxford History of English Art.

This is the sixth volume of the Oxford History of English Art to be published; its author, the President of Magdalen, is the editor of the series. The question proper for its reviewer in the *Journal of the Society of Architectural Historians* to pose himself, and to answer to the best of his ability, is: How is it on architecture?

To submit it first to the easiest test, a quantitative one, it may be said that architecture is given a very fair share of the available space—approximately 103 pages out of a total of 320, and fifty-six out of 191 halftone illustrations. But how is that share shared? Here is the score: to Picturesque Gothic, culminating in Fonthill Abbey, five pages; to Regency Gothic, represented by works of Rickman, Wyatt again, and Hakewill, three pages; to Nash, both as architect and town-planner, and other architects whose careers impinged upon his, eleven; to Soane, a little more than a page and a half; to Papworth, almost as much as to Soane; to Regency town-planning achievements outside London, six pages, and to the bridges, piers, and aqueducts of the same period, two and a half; to Wilkins and Smirke and the Greek-versus-Gothic battle of the 1820s and 1830s, with a glance at Decimus Burton and Philip Hardwick, five pages; to the churches built as a result of the 'Million Act' of 1818, four and a half; to Basevi, C. R. Cockerell, and St. George's Hall in Liverpool, six; to the Houses of Parliament, Barry, and Pugin, seven; to the Elizabethan revival at Salvin's Harlaxton and Barry's Highclere, a page; to the Italianate style of the 'forties, the Egyptian of the 'thirties, and the High Victorian Italian initiated by Barry's Halifax Town Hall, four pages; to Wyatt 'the Destroyer', Cottingham the restorer, and Pugin the reviver, fourteen pages; to Gilbert Scott and the Middle Pointed proponents and exponents, six pages; to Ruskin's *Seven Lamps* and the 'hard' Gothic of Butterfield and Street and one or two others, the same; to the Science Museum in Oxford, the Foreign Office in Whitehall, and the Law Courts in the Strand, four pages; to the Great Exhibition and the Crystal Palace, with a page on train sheds and Bunning's Coal Exchange, seven; to the Red House, half a page; to commemorative architecture with its sculptural accessories, eleven pages.

Fair enough? On the whole, yes. Soane, most will feel, is slighted. To say that C. R. Cockerell 'is in imaginative power and sense of general effect the most impressive English architectural genius of the century' is surely to claim too much for that learned and talented eclectic. 'He can give unquestioning satisfaction', Dr. Boase continues, 'where Soane can only interest by his ingenuity and invention.' Soane would have been pleased with the recognition of the last-named quality in his work; 'Architecture', he wrote, 'is an art purely of Invention . . . and Invention is the most painful and the most difficult exercise of the human mind.' Then should not Norman Shaw be represented by something more than a bookcase? Both Glen Andred and Leyswood were built by Dr. Boase's terminal date of 1870. But then Dr. Boase sees Shaw as 'the dominant architectural personality of the closing years of the century', and he does not see much good in those closing years, or indeed in the last of the decades with which he is more immediately concerned. 'The much envied prosperity of England was in the period between the Crimean War and 1914 to be discounted by a not unmerited continental contempt for English taste and visual accomplishment', he writes. To which one may rejoin: 'What about Mackmurdo, and the English contribution to Art Nouveau, and Voysey?' Not that these come within the scope of this book, of course. But Dr. Boase apparently would deny their significance, and in consequence, as it seems to me, one misses what can best be described as a sense of direction in his account. For a writer to maintain, and enable his readers to maintain, a sense of direction among the ramifications and proliferations of English nineteenth-century architecture is difficult—much

more difficult than it is for a writer on American nineteenth-century architecture, in which so many things may be regarded as preparations for the overwhelming phenomena of the skyscraper and Frank Lloyd Wright. Not to recognize that there was a kind of fruition in the last years of the century is to make it more difficult than it need be.

Yet I would not wish to end on a sour note. No previous volume in the series confronted its author with comparable problems of selection and compression. Dr. Boase has solved most of them with judgment and skill. If there is little that is positively new in his pages on architecture—in contrast to Dr. Whinney's chapters in *English Art 1625-1714*, which contained quite a lot that was—they do nevertheless constitute a useful and eminently readable compendium.

MARCUS WHIFFEN
Arizona State University

Books Received

(Mention of a book here does not preclude its subsequent review.)

Henry Adams, *Mont-Saint-Michel and Chartres*, introduction by Ernest Samuels (New York: New American Library Mentor Books, 1961), 384 pp., illus. \$.75.

Reyner Banham, *Theory and Design in the First Machine Age* (New York: Frederick A. Praeger, Inc., 1960), 338 pp., 137 illus. \$12.50.

Margarete Bieber, *The History of the Greek and Roman Theater* (Princeton: Princeton University Press, 1961), 2nd edition revised and enlarged, 343 pp., 866 illus. \$17.50.

Axel Boëthius, *The Golden House of Nero, Some Aspects of Roman Architecture* (Ann Arbor: University of Michigan Press, 1960), 195 pp., 109 figs. \$15.00. Jerome Lectures No. 5.

Theodore Brown, *Introduction to Louisville Architecture* (Louisville: Louisville Free Public Library, 1960), 38 pp., 70 illus. \$1.45.

A visual and critical presentation growing out of a documentary field study of Louisville initiated by the Citizen's Metropolitan Planning Committee and sponsored by Louisville Central Area, Inc.

John Burchard and Albert Bush-Brown, *Architecture of America, A Social and Cultural History* (Boston: Little Brown and Co., 1961), 595 pp., illus. \$15.00.

Chris Choate, *Architectural Presentation in Opaque Watercolor* (New York: Reinhold Publishing Corp., 1961), 158 pp., illus. \$12.50.

William A. Coles and Henry Hope Reed, Jr. (eds.), *Architecture in America: A Battle of Styles* (New York: Appleton-Century-Crofts Inc., 1961), 412 pp., illus. \$2.40.

An anthology planned for college courses in writing, it contains not only a series of selections from Vitruvius to Zevi, but, even more valuable for the historian, a collection of excerpts from articles on five controversial buildings of the immediate past: The Columbian Exposition; The National Gallery; The United Nations; Lever House; and The Price Tower.

Luigi Crema, *L'Architettura Romana* (Turin: Società Editrice Internazionale, 1959), 688 pp., 844 figs. 8000 l. Enciclopedia Classica, sec. III, vol. XII, part 1.

M. Du Buit, *Biblical Archeology* (New York: Hawthorn Books, 1960), 110 pp. \$3.50. Twentieth Century Encyclopedia of Catholicism, vol. 62.

John Fitchen, *The Construction of Gothic Cathedrals, A Study of Medieval Vault Erection* (New York: Oxford University Press, 1961), 344 pp., 73 figs. \$10.10.

Lawrence Hall Fowler and Elizabeth Baer, *The Fowler Architectural Collection of The Johns Hopkins University, Catalogue* (Baltimore: The Evergreen Foundation, 1961), 383 pp., 30 pls. \$20.00.

Geoffrey Keynes, *A Bibliography of Dr. Robert Hooke* (New York: Oxford University Press, 1960), 115 pp., 15 pls. \$8.00.

The great scientist's work as an architect and assistant to Wren is discussed in the Preface, and there are two nineteenth-century drawings of Hooke's Royal College of Physicians.

Harold G. Leask, *Irish Churches and Monastic Buildings* (Dundalk: Dundalgan Press, 1955-1960), 3 vols. Vol. I, 278. 6d.; Vol. II, 35s.; Vol. III, 42s.

Lewis Mumford, *The City in History* (New York: Harcourt, Brace and Co., 1961), 657 pp., 64 pls. \$11.50.

William B. O'Neal, *Jefferson's Buildings at the University of Virginia*, vol. I, *The Rotunda* (Charlottesville: University of Virginia Press, 1960), 62 pp., 22 pls. \$8.00.

R. Ronald Palmer and William Maxwell Rice, *Modern Physics Buildings, Design and Function* (New York: Reinhold Publishing Corp., 1961), 324 pp., illus. \$13.50.

James C. Palmes, *Architectural Drawings From the Collection of the Royal Institute of British Architects* (London: Alec Tiranti, 1961), 18 pp., 54 pls. 5s.

Planned as a catalogue of the traveling exhibition now in the United States, the booklet suggests the wealth and range of this great collection.

Richard W. E. Perrin, *Historic Wisconsin Architecture* (Milwaukee: Wisconsin Chapter, American Institute of Architects, 1960), 35 pp., illus. \$1.00.

A useful illustrated guide beginning with the Greek Revival and concluding with the wealth of buildings by Frank Lloyd Wright.

Nikolaus Pevsner, *An Outline of European Architecture* (Baltimore: Penguin Books Inc., Jubilee Edition, 1960), 740 pp., 609 pls., 147 figs. \$30.00.

An enlarged and beautifully illustrated version of Pevsner's basic work. This English edition is based to a great extent on a similar edition published in German in 1957. The large format and heavy coated paper make the book difficult to use, but the resulting quality of the illustrations makes up for this. The pictures themselves are to be read as part of the text as in many cases the works are hardly mentioned. The expansion of the pre-Romanesque Spanish and German Baroque sections (the most important changes) help to make the book more valuable than ever.

William H. Pierson, Jr. and Martha Davidson (eds.), *Arts of the United States, A Pictorial Survey* (New York: McGraw-Hill Book Co. Inc., 1960), 452 pp., 4,156 illus. \$9.75. Text ed. \$7.25.

The accompanying illustrated catalogue with brief texts for the *Carnegie Study of the Arts of the United States* slide project. Hugh Morrison's excellent summary and synthesis of seventeenth- and eighteenth-century American architecture is brilliantly followed by William Jordy's on Federal and nineteenth-century architecture, which is sensitively written and beautifully organized. Vincent Scully's section on twentieth-century architecture with outstanding flashes of insight is a useful summary but he seems uneasy with the problem of the Beaux-Arts tradition.

Gio Ponti, *In Praise of Architecture*, preface by Mario Salvadori (New York: F. W. Dodge Corp., 1960), xii+270 pp., 16 pls. \$6.95.

John Reed, *The Hudson River Valley* (New York: Clarkson N. Potter, Inc., 1960), 239 pp., illus. \$15.00. 33 $\frac{1}{4}$ % discount to S.A.H. members.

Earl E. Rosenthal, *The Cathedral of Granada, A Study of the Spanish Renaissance* (Princeton: Princeton University Press, 1961), xiv+235 pp., 127 pls., 10 figs. \$20.00.

Saggi e Memorie di storia dell'arte II (Venezia, 1959), pp. 378, illus. Publication of the Fondazione Giorgio Cini.

This volume contains the following articles of architectural interest: Paolo Gualdo, 'Vita di Andrea Palladio', pp. 91-104; Maria Lewicka, 'Bernardo Morando', pp. 141-155.

Edward H. Schaefer, *Tu Wan's Stone Catalogue of Cloudy Forest* (Berkeley: University of California Press, 1961), 116 pp., 4 pls. \$5.00.

F. H. W. Sheppard (ed.), *Survey of London: The Parish of Hackney, Part One: Brooke House* (London: London County Council, 1960), 90 pp., 43 pls. (one in color), 19 figs. 30s. Survey of London Volume XXVIII.

Verna Cook Shipway and Warren Shipway, *The Mexican House, Old and New* (New York: Architectural Book Publishing Co. Inc., 1960), 187 pp., illus. \$12.50.

The Solomon R. Guggenheim Museum, Architect: Frank Lloyd Wright (New York: Solomon Guggenheim Foundation and the Horizon Press, 1960), 14 pp., illus. \$3.95. A useful summary with a multitude of illustrations.

James Johnson Sweeney and Joseph Luis Sert, *Antonio Gaudí* (New York: Frederick A. Praeger Inc., 1961), 181 pp., 193 illus. \$15.00.

George B. Tatum, *Penn's Great Town, 250 Years of Philadelphia Architecture Illustrated in Prints and Drawings*, foreword by Theodore B. White (Philadelphia: University of Pennsylvania Press, 1961), 352 pp., 145 pls. \$12.50.

Saul S. Weinberg, *Corinth: The South East Building, The Twin Basilicas, The Mosaic House* (Princeton: American School of Classical Studies at Athens, 1960), 128 pp., 57 pls., 10 plans. \$12.50. Corinth Excavations, volume one, part v.

Periodicals Received

Journal of the Royal Society of Arts, London.

No. 5056, Mar. 1961.

No. 5057, Apr. 1961.

No. 5058, May 1961.

No. 5059, June 1961.

Ekistics, Athens.

Monthly abstracts on the problems and science of human settlements.

Journal of the Royal Institute of British Architects, London.

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